UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

MICROSOFT CORP., Plaintiff, v. ALCATEL –LUCENT ENTERPRISE and GENESYS TELECOMMUNICATIONS LABORATORIES, INC. Defendants.	Civil Action No. 07-090-SLR Hon. Sue L. Robinson **PUBLIC VERSION** **JURY TRIAL DEMANDED**

DECLARATION OF THOMAS L. HALKOWSKI IN SUPPORT OF MICROSOFT'S REPLY IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT OF NO INEQUITABLE CONDUCT

I, Thomas L. Halkowski, declare:

1. I am a Principal of Fish & Richardson P.C. ("F & R"), counsel of record in this action for Plaintiff Microsoft Corporation ("Microsoft"). I am a member of the Bar of the State of Delaware and of this Court. I have personal knowledge of the matters stated in this declaration and would testify truthfully to them if called upon to do so.

2. A true and correct copy the transcript [redacted] is attached hereto as Exhibit O.

3. A true and correct copy of excerpts from the confidential transcript [redacted] is attached hereto as Exhibit P.

4. A true and correct copy of excerpts [redacted] is attached hereto as Exhibit Q.

5. A true and correct copy of excerpts from the Prosecution History of United Stated Patent No. 6,421,439 is attached hereto as Exhibit R.

6. A true and correct copy of excerpts from the Prosecution History of United States Patent No. 6,430,289 is attached hereto as Exhibit S.

7. I declare under the penalty of perjury that the foregoing is true and correct.

Date: June 30, 2008

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CERTIFICATE OF SERVICE

I hereby certify that on July 8, 2008, I electronically filed with the Clerk of Court the attached **PUBLIC VERSION OF THE DECLARATION OF THOMAS L. HALKOWSKI**, using CM/ECF which will send notification of such filing to the following individuals:

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Exhibit O

REDACTED
IN ITS ENTIRETY

Exhibit P

REDACTED
IN ITS ENTIRETY

Exhibit Q

REDACTED
IN ITS ENTIRETY

Exhibit R

PW 7051523

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

March 05, 2007

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS OF:

APPLICATION NUMBER: *09/275,689*
FILING DATE: *March 24, 1999*
PATENT NUMBER: *6,421,439*
ISSUE DATE: *July 16, 2002*

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

P. R. GRANT
Certifying Officer

MSAL 00524

ISSUE CLASSIFICATION	Class	Subclass
	379	211.02

PATENT NUMBER
6421439
6421439

U.S. UTILITY PATENT APPLICATION

(2) O.I.P.E. PD	PATENT DATE
SCANNED BAW Q.A. RG	JUL 16 2002

SECTOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
	379	211.02	2744	Tieu

FILED WITH: ☐ DISK (CRF) ☐ FICHE
(Attached in pocket on right inside flap)

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APR 0 6 2004
of Correction

PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)	
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)
379	211.02	379	201.02
INTERNATIONAL CLASSIFICATION		709	328
H04M	3/42		
G06F	9/46		
	/		
	/		
	/		

☐ Continued on Issue Slip Inside File Jacket

06/17/02 [illegible] 08 sheet 01 03/24/99

☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg.	Figs. Drwg.	Print Fig.	Total Claims	Print Claim for O.G.
	8	8	2	51	1

☐ a) The term of this patent subsequent to _____ (date) has been disclaimed.	BENNY Q. TIEU PATENT EXAMINER (Assistant Examiner) 3/4/02 (Date)	NOTICE OF ALLOWANCE MAILED 3/19/02
☐ b) The term of this patent shall not extend beyond the expiration date of U.S Patent. No. _____	Ahmad F. Matar AHMAD F. MATAR SUPERVISORY PATENT EXAMINER TECHNOLOGY CENTER 2700 (Primary Examiner) 3/8/02 (Date)	ISSUE FEE: Amount Due $1,250 / Date Paid 6/5/02 MC
☐ c) The terminal ____months of this patent have been disclaimed.	Shirley Cambridge (Legal Instruments Examiner) 3/21/02 (Date)	ISSUE BATCH NUMBER

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Form PTO-436A
(Rev. 6/98)

Formal Drawings (___shts) set

(LABEL AREA) ISSUE FEE IN FILE

MSAL 00525

(FACE)

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/275,689	03/24/99	379	2742 2642	664065.454

APPLICANT

STEPHEN MITCHELL LIFFICK, SEATTLE, WA.

CONTINUING DOMESTIC DATA********
VERIFIED

371 (NAT'L STAGE) DATA********
VERIFIED

FOREIGN APPLICATIONS********
VERIFIED

IF REQUIRED, FOREIGN FILING LICENSE GRANTED 04/16/99

Foreign Priority claimed 35 USC 119 (a-d) conditions met	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐yes ☐no ☐yes ☐no ☐Met after Allowance Verified and Acknowledged _____ Examiner's Initials _____ Initials	WA	8	51	4

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SEATTLE WA 98104-7092

TITLE

SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
$1,396	No. _____ to charge/credit DEPOSIT ACCOUNT NO. _____ for the following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

04/05/1999 BALEXAN0 00000036 09275689

01 FC:101	760.00	OP
02 FC:102	78.00	OP
03 FC:103	558.00	OP

PTO-1556
(5/87)

*U.S. GPO: 1998-433-214/80404

Please type a plus sign (+) inside this box

PTO/SB/05 (2/98)

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for nonprovisional applications under 37 CFR § 1.53(b))

Attorney Docket No.	664005.45
First Inventor or Application Identifier	Stephen Mitchell Liffick
Title	SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
Express Mail Label No.	EM150272273US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Box Patent Application
Assistant Commissioner
Washington, D.C. 202..

1. [X] General Authorization Form & Fee Transmittal *(Submit an original and a duplicate for fee processing)*
2. [X] Specification [Total Pages] 36 *(preferred arrangement set forth below)*
   - Descriptive Title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
3. [X] Drawing(s) *(35 USC 113)* [Total Sheets] 8
4. Oath or Declaration [Total Pages] 2
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 17 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)
5. [ ] Incorporation By Reference *(useable if box 4b is checked)* The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. [ ] Microfiche Computer Program *(Appendix)*
7. Nucleotide and Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. [ ] Computer-Readable Copy
   b. [ ] Paper Copy (identical to computer copy)
   c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. [X] Assignment Papers (cover sheet & document(s))
9. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [X] Power of Attorney
10. [ ] English Translation Document *(if applicable)*
11. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
12. [ ] Preliminary Amendment
13. [X] Return Receipt Postcard
14. [ ] Small Entity Statement(s) [ ] Statement filed in prior application, Status still proper and desired
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [X] Other: Certificate of Express Mail
    Check for $1436

17. **If a CONTINUING APPLICATION,** *check appropriate box and supply the requisite information below and in a preliminary amendment*

[ ] Continuation [ ] Divisional [ ] Continuation-In-Part (CIP) of prior Application No.: _____

Prior application information: Examiner _____ *Group / Art Unit* _____

[ ] Claims the benefit of Provisional Application No. _____

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Respectfully submitted,

TYPED or PRINTED NAME Michael J. Donohue REGISTRATION NO. 35,859

SIGNATURE Michael J. Donohue Date March 24, 1999

U:\ShannonR\1022

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen Mitchell Liffick

Filed : March 24, 1999

For : SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK

Docket No. : 664005.454

Date : March 24, 1999

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

Sir:

I hereby certify that the enclosures listed below are being deposited with the United States Postal Service "EXPRESS MAIL Post Office to Addressee" service under 37 C.F.R. § 1.10, Mailing Label Certificate No. EM150272273US, on March 24, 1999, addressed to Box Patent Application, Assistant Commissioner for Patents, Washington, DC 20231.

Respectfully submitted,

SEED and BERRY LLP

Aaron Dooley / Jeanette West / Susan Johnson

Enclosures:

Postcard
Check for $1436
Form PTO/SB/05
General Authorization Under 37 C.F.R. § 1.136(a)(3) and Fee Transmittal (+ copy)
Specification, Claims, Abstract (36 pages)
8 Sheets of Drawings (Figures 1-8)
Declaration and Power of Attorney
Form PTO-1595
Assignment

U:\ShannonR\1020

EXPRESS MAIL NO. EM150272273US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Stephen Mitchell Liffick
Title	:	SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
Docket No.	:	664005.454
Date	:	March 24, 1999

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

GENERAL AUTHORIZATION UNDER 37 C.F.R. § 1.136(a)(3)
AND FEE TRANSMITTAL

Sir:

With respect to the above-identified application, the Assistant Commissioner is authorized to treat any concurrent or future reply requiring a petition for an extension of time under 37 C.F.R. § 1.136(a)(3) for its timely submission as incorporating a petition therefor for the appropriate length of time. The Assistant Commissioner is also authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 19-1090.

With respect to the above-identified application, the fee is calculated below:

For	Number filed	Number extra		Rate		
Basic Fee						**$ 760**
Total Claims	51	31	X	$ 18	=	**$ 558**
Independent Claims	4	1	X	$ 78	=	**$ 78**
Assignment Fee					+	**$ 40**
TOTAL FILING FEE						**$ 1436**

A check in the amount of $1436 is enclosed to cover the filing fee.

The Assistant Commissioner is authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required, or credit any overpayment, to Deposit Account No. 19-1090. A duplicate copy of this request is enclosed.

Date March 24, 1999

Michael J. Donohue

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MJD:sr

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SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK

TECHNICAL FIELD

The present invention is directed generally to telecommunications and, more particularly, to a system and method for user selection of individual affiliations in a telephone network.

BACKGROUND OF THE INVENTION

Advances in telecommunication technology provide a user with a broad variety of communication options. For example, advances in telephone communication, including wireless telephone and cellular telephone, allow almost instantaneous communication between virtually any two locations on earth. Telephone service providers typically offer wide range of options, such as voice mail, caller identification, call waiting, call forwarding, three-way calling, and the like. The telephone service subscriber can customize their own telecommunications service with the selection of one or more options.

Despite these advances, the user is still limited in determining with whom the user wishes to speak and when the user wishes to speak with certain parties or, at the user's option, not speak with certain parties. Although caller identification (ID) can identify the calling party, caller ID does not always correctly identify the caller. For example, if the number identification data is not transmitted along with the call, the caller ID device indicates that caller data is "unavailable." In addition, the user must still respond to the ringing telephone and view the caller identification box to determine whether or not to answer the telephone. Thus, existing telephone technologies do not always provide user with the desired degree of control over incoming calls.

Therefore, it can be appreciated that there is a significant need for system and method to control incoming calls to a user's telephone. The present invention provides this and other advantages as will be apparent from the following detailed description and accompanying figures.

SUMMARY OF THE INVENTION

A system to specify user-selectable criteria for call processing is implemented on a conventional telephone system, such as a public switched telephone network (PSTN). The user-specified call processing criteria is stored on a network that is accessible by the user for data entry and/or editing, and is also accessible by the PSTN to determine whether call processing criteria exists for the particular cailer. The Internet provides a readily available data structure for storage of the user-selectable call processing criteria. The user can establish a database stored on the Internet in association with the user's telephone number and indicating the user-selectable call processing criteria for one or more potential callers.

The caller may be identified by caller identification data, such as automatic number identification (ANI). Based on the destination telephone number and the caller identification data, the PSTN accesses the Internet and examines an affiliation list corresponding to the destination telephone number. If the caller identification data is present in the affiliation list, the call may be processed in accordance with the user-specified criteria for that particular caller.

The user (*i.e.*, the called party) can specify user-selectable call processing criteria for all incoming calls, incoming calls from selected callers, and may further apply conditional criteria based on user preferences. For example, the user may select all calls during certain times of the day, calls from selected parties during other specified times of the day, and no calls during other times of the day. The user-selectable call processing criteria may be readily edited by the user and may be applied to multiple phone numbers associated with a particular caller.

The system may be readily implemented on current telephone systems with no significant modifications. For example, the system may apply the user-specified call processing criteria at the central office switch to which the destination telephone is coupled. All call processing prior to arrival at that central office switch is performed in accordance with conventional telecommunication techniques and standards. When a call arrives at the central office switch coupled to the destination telephone, the central office switch does not immediately establish a communication link with the destination telephone, but accesses the user-specified call processing criteria on the Internet and applies the call processing criteria. If the call is allowed, the central office switch establishes a communication link with the destination telephone in a conventional fashion to complete the telephone call. If the call is not allowed, the central office switch will not process the call, and may generate a busy signal to indicate that the user is unavailable.

The system may also be implemented at other points in the telecommunication network, such as a central office switch at the originating telephone. In addition, the user-specified call processing criteria may be stored on other forms of networks that are accessible to both the user (*i.e.*, the called party) and the telecommunication system.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a computer system that includes components to implement the system of the present invention.

Figure 2 is a functional block diagram outlining the operation of the present invention.

Figure 3 is a functional block diagram of an alternate telecommunications configuration implementing the present invention.

Figure 4 is a functional block diagram of another alternative telecommunications configuration implementing the present invention.

Figure 5 is a functional block diagram providing details of the affiliation list of the system of Figure 2.

Figure 6 illustrates sample data provided in the list of Figure 5.

Figure 7 illustrates additional sample data provided in the list of Figure 3.

Figure 8 is a flowchart illustrating the operation of the system of Figure 2.

DETAILED DESCRIPTION OF THE INVENTION

Existing telephone technology does not provide the telephone subscriber with a technique for controlling access to the user's telephone. Features such as caller ID identify the caller, but do not control access to the user's telephone. Thus, the conventional telephone system forwards the user to extreme options. The user may answer all incoming calls or may choose not to answer any incoming calls. However, the present invention provides selective options in between these two extremes. The present invention combines telephone technology with Internet technology to allow the user to "filter" incoming calls based on user-selected criteria. In particular, the user may establish a series of lists, stored on the Internet in association with the user's telephone, to filter incoming calls and thereby control access to the user's telephone.

Figure 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system

configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

With reference to Figure 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit 21. The system bus 23 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system 26 (BIOS), containing the basic routines that helps to transfer information between elements within the personal computer 20, such as during start-up, may be stored in ROM 24.

The personal computer 20 further includes input/output devices 27, such as a hard disk drive 28 for reading from and writing to a hard disk, not shown, a magnetic disk drive 29 for reading from or writing to a removable magnetic disk 30, and an optical disk drive 31 for reading from or writing to a removable optical disk 32 such as a CD ROM or other optical media. The hard disk drive 28, magnetic disk drive 29, and optical disk drive 31 are connected to the system bus 23 by a hard disk drive interface 33, a magnetic disk drive interface 34, and an optical drive interface 35, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the personal computer 20. Although the

exemplary environment described herein employs a hard disk, a removable magnetic disk 30 and a removable optical disk 32, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment. Other I/O devices 27, such as a display 36, keyboard 37, mouse 38, and the like may be included in the personal computer 20 and function in a known manner. For the sake of brevity, other components, such as a joystick, sound board and speakers are not illustrated in Figure 1.

The personal computer 20 may also include a network interface 36 to permit operation in a networked environment using logical connections to one or more remote computers, such as a remote computer 40. The remote computer 40 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the personal computer 20, although only a memory storage device 42 has been illustrated in Figure 1. The logical connections depicted in Figure 1 include a local area network (LAN) 43 and a wide area network (WAN) 44. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

When used in a LAN networking environment, the personal computer 20 is connected to the LAN 43 through the network interface 39. When used in a WAN networking environment, the personal computer 20 typically includes a modem 45 or other means for establishing communications over the wide area network 44, such as the Internet. The modem 45, which may be internal or external, permits communication with remote computers 46-50. In a networked environment, program modules depicted relative to the personal computer 20, or portions thereof, may be stored in the remote memory storage device 42 via the LAN 51 or stored in a

remote memory storage device 52 via the WAN 44. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

The present invention is embodied in a system 100 illustrated in the functional diagram of Figure 2. In a typical telephone communication, an originating telephone 102 is operated by a calling party to place a call to a destination telephone 104. The originating telephone generates signals that are detected by a central office switch 106 operated by a local exchange carrier (LEC) 108. The LEC 108 is the telephone service provider for the calling party. The originating telephone 102 is coupled to the central office switch 106 via a communication link 110. As those skilled in the art can appreciate, the communication link 110 may be a hard-wired connection, such as a fiber optic, copper wire, or the like. Alternatively, the communication link 110 may be a wireless communication link if the originating phone 102 is a cellular telephone or some other form of wireless telephone.

Similarly, the destination telephone 104 is coupled to a central office switch 116 operated by a local exchange carrier (LEC) 118. The destination telephone 104 is coupled to the central office switch 116 via a communication link 120. The communication link 120 may be a hard-wired communication link or a wireless communication link, as described above with respect to the communication link 110. The present invention is not limited by the specific form of communication link or central office switch.

The LEC 108 establishes a communication link with the LEC 118. As illustrated in Figure 2, the communication link between the LEC 108 and the LEC 118 is through a long distance carrier (LDC) 124. The LEC 108 establishes a communication link 126 with the LDC 124 which, in turn, establishes a communication link 128 with the LEC 118. If the telephone call from the originating telephone 102 to the destination telephone 104 is not a long distance

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call, the LDC 124 is not required. In this case, the communication link 126 may couple the LEC 108 directly to the LEC 118. The use of the system 100 with other telephone configurations are illustrated in other figures.

To place a telephone call, the calling party activates the originating telephone 102 to dial in the telephone number corresponding to the destination telephone number 104, thereby establishing the communication link 110 with the central office switch 106. In turn, the central office switch 106 establishes the communication link 126 (via the LDC 124, if necessary), thus establishing a communication link with the central office switch 116. In a conventional telephone system, the central office switch 116 establishes the communication link 120 to the destination telephone 104 causing the destination telephone to ring. If the subscriber picks up the destination telephone, a complete communication link between the originating telephone 102 and the destination telephone 104 has been established. This is sometimes referred to as "terminating" the telephone call. The specific telecommunications protocol used to establish a telephone communication link between the originating telephone 102 and the destination telephone 104 is well known in the art and need not be described herein. The preceding description of techniques used to establish the telephone communication link are provided only as a basis for describing the additional activities performed by the system 100.

With the system 100, the central office switch 116 does not initially establish the telephone communication link 120 with the destination telephone 104 to cause the telephone to ring. Instead, the central office switch 116 establishes a communication link 132 with a computer network 134, such as the Internet. As those skilled in the art can appreciate, the Internet is a vast multi-computer network coupled together by data links having various communication speeds. Although the Internet 134 may use a variety of different communication protocols, a well-known communication protocol used by the Internet is a Transmission Control Protocol/Internet Protocol (TCP/IP). The transmission of data on the Internet 134

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using the TCP/IP is known to those skilled in the art and need not be described in greater detail herein.

The central office switch 116 utilizes conventional telephone communication protocols, which may be different from the TCP/IP communication protocols used by the Internet 134. The system 100 includes a communication interface 136 to translate data between the two communication protocols. The communication interface 136 includes a telephone interface portion 138 and an Internet interface portion 140. The telephone interface portion 138 is coupled to the central office switch 116 via the communication link 132 such that communications occurring on the communication link 132 utilize the telephone communication protocol. The Internet interface portion 140 communicates via the Internet using conventional communication protocols, such as TCP/IP.

The communication interface 136 may be implemented on a computing platform that functions as a server. The conventional components of the computing platform, such as a CPU, memory, and the like are known to those skilled in the art and need not be described in greater detail herein. The telephone interface portion 138 may comprise an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) to communicate with the central office switch 116. The ISDN PRI, which may be implemented on a plug-in computer card, provides information to the telephone interface portion 138, such as automatic number identification (ANI), dialed number identification service (DNIS), and the like. As is known, ANI provides the telephone number of the caller's telephone (*e.g.*, the originating telephone 102) while the DNIS allows the number the caller dialed (*e.g.*, the destination telephone 104) to be forwarded to a computer system. These data may be considered "keys" which may be used by the system 100 to identify the caller and the callee. Thus, the central office switch 116 provides information which may be used to access the affiliation list 150 for the destination telephone 104.

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The Internet interface portion 140 may be conveniently implemented with a computer network card mounted in the same computing platform that includes the ISDN PRI card. However, it is not necessary for satisfactory operation of the system 100 that the interface cards be co-located in the same computing platform. It is only required that the telephone interface portion 138 communicate with the Internet interface portion 140. The Internet interface portion 140 receives the incoming data (*e.g.*, the ANI, DNIS, and the like) and generates Internet compatible commands. The specific form of the Internet commands using, by way of example, TCP/IP, are within the scope of knowledge of one skilled in the art and need not be described herein. As will be described below, data provided by the central office switch 116 will be used to access data on the Internet and use that data to determine the manner in which a telephone call will be processed.

The Internet 134 stores an affiliation list 150, which may be established by the user of the destination telephone 104. Data stored within the affiliation list 150 is accessed by the central office switch 116 to determine the manner in which the call from the originating telephone 102 will be processed. Details of the affiliation list 150 are provided below. The Internet 134 also includes an Internet controller 152 which communicates with a user computer 154 via a network link 156. The communication between the user computer 154 and the Internet 134 is a conventional communication link used by millions of computers throughout the world. For example, the user computer 154 may be a personal computer (PC) containing a communication interface, such as a modem (not shown). The network link 156 may be a simple telephone communication link using the modem to communicate with the Internet 134. The Internet controller 152 functions in a conventional manner to communicate with the user computer 154 via the network link 156. Although the communication link 132 and the network link 156 are both communication links to the Internet, the network link 156 is a conventional computer connection established over a telephone line, a network connection, such

as an Ethernet link, or the like. This conventional network link 156 is significantly different from the communication link 132 between the central office switch 116 and the Internet 134. The central office switch 116 establishes the communication link 132 to access data on the Internet and uses that accessed data to determine how to process an incoming call for the destination telephone 104. The network link 156 is a computer-to-computer connection that may simply use a telephone as the physical layer to establish the network link.

In the system 100, the central office switch 116 receives an incoming call from the originating telephone 102 via the central office switch 106 and, optionally, the LDC 124. Rather than immediately establishing the communication link 120 and generating a ring signal at the destination telephone 104, the central office switch 116 establishes the communication link 132 and communicates with the Internet 134 via the communication interface 136. The purpose of such communication is to access the affiliation list 150 and thereby determine the manner in which the user of the destination telephone 104 wishes calls to be processed.

Figure 3 illustrates the system 100 for a telephone system configuration in which the originating telephone 102 and the destination telephone 104 are both serviced by the same local exchange carrier 108. The originating telephone 102 establishes the communication link 110 with the central office switch 106 in the manner described above. The central office switch 106 establishes the communication link 126 directly with the central office switch 116 without the need for the LDC 124 (see Figure 2). The central office switch 116 operates in the manner described above. That is, the central office switch 116 does not immediately establish the communication link 120, but does establish the communication link 132 with the Internet 134. For the sake of simplicity, Figure 3 does not illustrate the communication interface 136. However, those skilled in the art will appreciate that the central office switch 116 accesses the affiliation list 150 via the communication interface 136 (see Figure 2).

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For the sake of simplicity, Figure 3 also does not show the Internet controller 152 and the user computer 154. However, those skilled in the art can appreciate that those portions of the system may also be present in the embodiment illustrated in Figure 3. However, it should be noted that the user computer 154 and the Internet controller 152 need only be used to edit the affiliation list 150. The call processing by the central office switch 116 does not depend on the presence of the Internet controller 152 or the user computer 154. That is, the central office switch 116 accesses the affiliation list 150 via the communication interface 136 regardless of the presence of the user computer 154.

In yet another telephone system configuration, illustrated in Figure 4, the originating telephone 102 and the destination telephone 104 are not only serviced by the same local exchange carrier 108, but are connected to the same central office switch 116. However, the fundamental operation of the system 100 remains identical to that described above with respect to accessing the affiliation list 150. That is, the originating telephone 102 establishes the communication link 110 with the central office switch 116. However, the central office switch 106 need not establish the communication link 126 with any other central office switch since the destination telephone 104 is also connected to that same central office switch.

In this telephone system configuration, the central office switch 116 accesses the affiliation list 150 on the Internet 134 via the communication link 132 (see Figure 2) in the manner described above. For the sake of simplicity, Figure 4 does not illustrate the communication interface 136. However, those skilled in the art will recognize that the communication interface 136 operates to convert communication signals between telephone protocol used by the central office switch 106 and the Internet communication protocol used by the Internet 134. In addition, Figure 4 also does not illustrate the Internet controller 152 and the user computer 154. As noted above with respect to Figure 3, the Internet controller 152 and user

computer 154 are not necessary for proper operation of the system 100. The user computer 154 is typically used in the system 100 to edit the affiliation list 150.

The affiliation list 150 is illustrated in greater detail in the functional block diagram of Figure 5. The affiliation list comprises a series of sublists, illustrated in Figure 3 as a forward list 160, a reverse list 162, a block list 164, and an allow list 166. The forward list 160 contains a list of Internet subscribers whose Internet activity a user wishes to monitor. This list is sometimes referred to as a "buddy" list. When the user operates the user computer 154 on the Internet 134, the Internet controller 152 accesses the forward list 160 via an affiliation list input/output (I/O) interface 170 to determine which Internet subscribers contained within the forward list are currently active on the Internet 134. In conventional Internet operation, the Internet controller 152 sends a message to the user computer 154 indicating which Internet subscribers on the forward list 160 are currently active on the Internet 134.

The forward list 160 is a list of Internet subscribers whose activity is reported to the user. Other Internet subscribers may have their own forward list (not shown) and may monitor the Internet activity of the user. When the user accesses the Internet 134 with the user computer 154, that activity can be monitored by others. With the system 100, it is possible to determine who is monitoring the user's Internet activity. The reverse list 162 contains a list of Internet subscribers who have placed the user in their forward list. That is, the reverse list 162 contains a list of Internet subscribers who have placed the user in their buddy list. With the reverse list 162, the user can determine who is monitoring his Internet activity.

The block list 164 contains a list of Internet subscribers that the user does not want to monitor his Internet activity. That is, the user's Internet activity will not be provided to any Internet subscriber contained in the block list 164. Thus, even if a particular Internet subscriber has placed the user on their forward list, the presence of that particular Internet subscriber's name on the block list 164 will

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prevent the user's Internet activity from being reported to the particular Internet subscriber. The use of the block list 164 provides certain security assurances to the user that their Internet activity is not being monitored by any undesirable Internet subscribers.

The allow list 166 contains a list of Internet subscribers for whom the user may wish to communicate with but whose Internet activity the user does not wish to monitor.

The system 100 combines the capabilities of the affiliation list 150 with telephone switching technology to filter incoming calls to the destination telephone 104. For example, the user may specify that only calls from Internet subscribers contained in the forward list 154 may contact the user via the destination telephone 104. Alternatively, the user may specify that a calling party whose name is contained in the forward list 160 or the allow list 166 may place a call to the destination telephone 104. As will be discussed in greater detail below, the system 100 allows the user to create general conditional processing, such as blocking calls or allowing calls. However, the user can also create specific conditional processing for individual callers or based on the user's current status or preferences.

The central office switch 116 accesses the affiliation list 150 via the communication link 132 and determines whether the calling party is in a list (*e.g.*, the forward list 160) that the user wishes to communicate with. If the calling party is contained within an "approved" list, the central office switch 116 establishes the communication link 120 and sends a ring signal to the destination telephone 104. Thus, the user can pick up the telephone with the knowledge that the calling party is an individual with whom the user wishes to communicate.

Conversely, if the calling party is not contained within an approved list, such as the forward list 160 or the allow list 166, the central office switch 116 will not establish the communication link 120 with the destination telephone 104. Thus, the user will not be bothered by undesirable phone calls. In one embodiment,

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the central switch office simply will not establish the communication link 120 and the calling party will recognize that the call did not go through. Alternatively, the central office switch 116 may generate a signal indicating that the destination telephone 104 is busy. In this alternative embodiment, the calling party will receive a busy signal on the originating telephone 102. Thus, the user has the ability to filter incoming calls by creating a list of those individuals with whom the user wishes to communicate.

It should be noted that the affiliation list 150 may be dynamically altered by the user to add or delete individuals, change individuals from one list to another, or to change the call processing options for a particular list depending on the user's preferences. For example, the user may want to accept all calls from any source at certain times of the day. Under these circumstances, the user can edit the allow list 166 to accept calls from any calling party. Alternatively, the user may still maintain the block list 164 such that calls will not be processed from certain specified parties even if the user is willing to accept calls from any other source. Under other circumstances, the user may not wish to communicate with any individuals. In this instance, the user may indicate that all calling parties are on the block list 164. Thus, the central office switch 116 will access the Internet 134 in real-time and review data in the affiliation list 150 to thereby process incoming calls for the user in accordance with the rules present in the affiliation list.

The discussion above provides examples of the central office switch 116 processing calls from a calling party in accordance with their presence or absence of certain lists in the affiliation list 150. For example, a call from a party on the forward list 160 will be connected to the destination telephone 104 (see Figure 2) while a call from a party on the block list 164 will not be put through to the destination telephone. However, the system 100 also allows the selection of call processing options on an individual basis rather than simply on the presence or absence in a particular list. For example, the user can edit the allow list 166 to

specify that certain individuals are "allowed" while other individuals may be allowed, conditionally allowed, or blocked all together. If the individual calling party has an associated status indicating that they are allowed, the central office switch 116 will process the incoming call and connect it to the destination telephone 104. If the individual calling party has an associated blocked status, the central office switch 116 will not process the call and will not connect it to the destination telephone 104.

Furthermore, the user may attach conditional status to individual callers or to calling lists. Conditional status may be based on factors, such as the time of day, current availability of the user, work status, or the like. For example, the user may accept calls from certain work parties during specified periods of the day (*e.g.*, 9:00 a.m. - 11:00 a.m.), block calls from selected calling parties during other periods of time (*e.g.*, 12:00 - 1:00 p.m.), or allow calls during a business meeting only from certain calling parties (*e.g.*, the boss). These conditional status criteria may be applied to individuals or to one or more lists in the affiliation list 150.

Figure 6 illustrates sample data entries in the allow list 166. The allow list 166 may include data, such as a name, Internet subscriber name, and one or more phone numbers associated with the individual data entry. It should be noted that the calling party need not have an Internet subscriber name for proper operation of the system 100. That is, the central office switch 116 accesses the allow list 166 utilizing the calling party number and need not rely on any email addresses or other Internet subscriber identification for proper operation. The allow list 166 may also include an email alias in addition to or in place of the Internet subscriber name. Some Internet subscribers prefer to "chat" with other subscribers utilizing an alias rather than their actual Internet subscriber name. The data of Figure 6 illustrates one possible embodiment for the allow list 166. However, those skilled in the art can appreciate that the allow list 166 may typically be a part of a large database (not

shown). Database operation is well known in the art, and need not be described in greater detail herein. The database or other form of the forward list 160 may be satisfactorily implemented using any known data structure for storage of data. For example, the various lists (*e.g.*, the allow list 166, the reverse list 162, the block list 164 and the allow list 166) may all be integrated within a single database structure. The present invention is not limited by the specific structure of the affiliation list 150 nor by the form or format of data contained therein.

Rather than incoming call filtering on the basis of presence in a particular list, such as the allow list 166, as illustrated in Figure 6, the affiliation list 150 may contain status data on an individual basis. In this event, the central office switch 116 (see Figure 2) processes the incoming call in accordance with the designated status for that individual. In the example illustrated in Figure 7, the affiliation list 150 contains one individual with an "allowed" status, one individual with a "blocked" status, and one individual with a "conditional" status based on user-selected criteria. In the example of Figure 7, the user-selected criteria may be based on the particular phone from which the call is originating as well as the time of day in which the call is originated. For example, the user may wish to allow all calls from a particular number, such as an caller's work number. However, calls from another number, such as the caller's home phone, may be blocked. Other calls, such as from a caller's cellular telephone, may be allowed only at certain times of day. Figure 7 is intended to illustrate some of the call processing options that are available to the user. As can be appreciated, a variety of different conditional status criteria may be applied to one or more potential calling parties. However, a common feature of the system 100 is that the telecommunication system (*e.g.*, the central office switch 116) determines calling party status on the basis of information stored on the Internet and processes the incoming call in accordance with the user-specified criteria. Moreover, the system 100 operates in real-time to process the incoming call in accordance with the user-specified criteria.

The Internet 134 may be conveniently used as a storage area for the caller specified criteria. The advantage of such data storage on the Internet is that the data is widely accessible to the user. This provides a convenient mechanism for entering new caller data or editing existing caller data. The user can access the affiliation list 150 with the user computer 154 via the network link 156. In contrast, the central office switch 116 may access the affiliation list 150 via the communication link 132, which may typically be a high-speed communication link. In addition, Figures 2, 4, and 5 illustrate the central office switch 116 as the telecommunication component that accesses the Internet 134. It is convenient for operational efficiency to have the central office switch (*e.g.*, the central office switch 116) to which the destination telephone 104 is connected perform such Internet access. It is at this stage of the telephone call processing that the telecommunication system may most conveniently determine the user-specified caller status. However, those skilled in the art will recognize that the status check may be performed by other portions of the telecommunication system, such as the central office switch 106, the LDC 124, or the like. Thus, the present invention is not limited by the particular telecommunication component that establishes the communication link with a network which the user-specified caller status data is stored.

In addition, the system 100 can be readily implemented as an "add-on" component of the telecommunication system and need not be integrated with the central office switch 116. For example, the conventional central office switch provides the ability to divert calls based on certain call conditions, such as "Call Forward No Answer," which may be used to divert an incoming call to voicemail or "Call Forward Busy," which may also divert the incoming call to voicemail. To implement the system 100 with an add-on processor, the system may optionally include a Switch to Computer Applications Interface (SCAI) 174 and a call filtering processor 176. The dashed lines of Figure 4 are intended to illustrate an alternative

configuration of the system 100. This alternative configuration can also be implemented with other telephone system configurations, such as illustrated in Figures 2 and 3. The SCAI 174 is a telecommunication protocol that allows switches to communicate with external computers. Data, such as caller and callee telephone numbers, and status information, such as Call Forward Busy, are provided to the SCAI 174 by the central office switch 116.

The call filtering processor 176 performs the functions described above to process the call in accordance with the user-specified criteria. That is, the call filtering processor 176 receives caller and callee data from the SCAI 174 and accesses the affiliation list 150 via the communication interface 136 (see Figure 2). The call filtering processor 176 uses user-specified call processing criteria to generate instructions for the central office switch 116. The instructions are provided to the central office switch 116 via the SCAI 174. Those skilled in the art will appreciate that the SCAI 174 is but one example of the Open Application Interface (OAI) that can be used with the central office switch 116.

As noted above, the system 100 can process a call intended for the destination telephone 104, block a call, or generate a busy signal at the originating telephone 102. However, the system 100 also operates with voicemail and permits a number of different customized outgoing messages. Figure 4 illustrates a voicemail system 180 having a storage area containing one or more outgoing messages 182. For example, the voicemail system 180 can play an outgoing message 182 informing the caller that "the party you are calling only accepts calls from designated callers. Please leave a message." If calls are blocked only at certain times, the outgoing message 182 can say "the party you are calling does not accept calls between 11:30 a.m. and 1:00 p.m. Please leave a message or call back after 1:00 p.m." The outgoing message can also reflect callee availability by playing a message such as "The party you are calling is in a meeting. Please leave a message or call back in X minutes" where X reflects the amount of time before the meeting is expected to end.

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That information can be manually provided to the affiliation list 150 by the user or automatically derived from a computerized scheduling program on, by way of example, the user computer 154 (see Figure 2).

Computerized scheduling programs, such as Microsoft® Schedule Plus, can be used on the user computer 154 (see Figure 2). It is known that such scheduling programs can be accessed via a computer network or downloaded to a hand-held computing device to track appointments. The system 100 can access such computerized scheduling programs and download appointments and scheduled meetings into the affiliation list 150. The outgoing messages 182 can be automatically selected on the basis of the user's computerized schedule. Thus, the system 100 permits the user to schedule his day (*e.g.*, meetings, lunch time, in office/available for calls, in office/unavailable for calls, etc.) on a computerized scheduling program and to process calls in accordance with the computerized schedule and even select outgoing messages automatically based on the user's schedule.

The operation of the system 100 is illustrated in the flowchart of Figure 7. At a start 200, the calling party has placed a call from the originating telephone 102 (see Figure 2) to the destination telephone 104. In step 202, the central office switch 116 has received call data from the originating telephone 102. The received call data includes the destination telephone number of the destination telephone 104 and identification data indicating the originating telephone 102 as the source of the present call. Use of automatic number identification (ANI) is a well-known technique for providing identification data indicating the originating telephone 102 as the source of the present call. While the specific implementation of ANI data, sometimes referred to as caller ID, may not be uniformly implemented throughout the United States, the ANI data is typically delivered between the first and second rings. In the present invention, the central office switch 116 (see Figure 2) does not initiate a ring signal to the destination telephone 104 until after

determining the status of the calling party based on the ANI. In future implementations, telecommunication companies may transmit other forms of caller identification, such as caller name, Internet address, email alias, or the like. The system 100 operates satisfactorily with any form of caller identification. The only requirement for the system 100 is that some form of caller identification be provided. The call is processed in accordance with the user-specified criteria in the affiliation list 150 for the identified caller.

In step 204, the central office switch 116 (see Figure 2) establishes the communication link 132 with the Internet 134. Although step 204 illustrates the system 100 as actively establishing the communication link 132 with the Internet 134, those skilled in the art will recognize that the system 100 can utilize a continuous high-speed data link between the central office switch and the Internet. Thus, it is not necessary to establish a network link for each and every incoming call processed by the central office switch 116. As previously described, the communication interface 136 translates data between the telephone protocol and the Internet protocol. In step 206, the system 100 accesses the affiliation list 150 for the user (*i.e.*, the called party). In an exemplary embodiment, the telephone number of the destination telephone 104 or other callee identification is used as an index or pointer to a specific location within the database where the affiliation list 150 for the particular user may be found. Database operation in general, and techniques for locating specific items within a database in particular are known to those skilled in the art and need not be described herein.

In decision 210, the system 100 determines whether the caller identification data is on the forward list 160 (see Figure 3). If the caller identification data is present in the forward list, the result of the decision 210 is YES. In that event, the system 100 proceeds to Figure 7B where the call is processed in accordance with the rules associated with the forward list 160.

If the caller identification data is not present in the forward list 160 (see Figure 3), the result of decision 210 is NO. In that event, the system 100 moves to decision 212 to determine whether the caller identification data is in the allow list 166. If the caller identification data is present in the allow list 166, the result of decision 214 is YES. In that event, the system 100 proceeds to decision 216 where the call is processed in accordance with the rules associated with the allow list 166. If the caller identification data is not present in the allow list 166, the result of decision 216 is NO.

In decision 218, the system 100 determines whether the caller identification data is present in the reverse list 162. If the caller identification data is present in the reverse list 162, the system 100 proceeds to the step 220 where the call is processed in accordance with the rules associated with the reverse list 162. If the caller identification data is not present in the reverse list, the result of decision 218 is NO. In that event, the system moves to decision 216 to determine whether the caller is present on the block list 164. If the caller is present on the block list 164, the result of decision 222 is YES. In that event, the system proceeds to step 224 where the call is processed in accordance with the rules associated with the block list. If the caller identification data is not present in the block list 164, the result of decision 222 is NO. This indicates that the caller identification data is not present in any of the user-specified lists in the affiliation list 150. In that event, the system moves to step 226 where the call may be processed in accordance with user-specified rules of processing anonymous or unidentified calls. The flowchart of Figure 8 illustrates the operation of the system 100 with multiple lists wherein the call processing rules are designated for each list. In this embodiment, the call is processed on the basis of the presence or absence of the caller identification data in a particular list. However, as previously discussed, the affiliation list 150 (see Figure 6B) may include user-specified status criteria for individual callers. In this embodiment, the system 100 processes the call on the basis of the user-specified

status criteria associated with the individual caller rather than on the basis of the caller's presence or absence in a specific list. In that event, the system 100 may simply access the user affiliation list (see step 206 in Figure 7) and process the call in accordance with the user-specified status criteria for the individual caller. If the caller identification data is not present in the affiliation list 160, the call may be processed using user-specified call processing criteria for unidentified callers, as shown in step 226.

Thus, the system 100 allows the user to specify call processing rules for a plurality of different caller lists or for individual callers within a list. The caller lists may be readily edited in accordance with the changing desires of the user. The user may alter the call processing rules in accordance with various times of day, work conditions, or even the personal mood of the user. For example, the user may process all calls during certain times of the day, such as when the user is at work. However, when the user arrives home, subsequent calls may be processed in accordance with a different set of rules, such as accepting no calls during dinner time or after a certain time at night.

These rules may be applied differentially to different ones of the list in the affiliation list 150. For example, the user may accept calls from any calling party on the forward list 160 (see Figure 3) or the allow list 166 during the evening hours. However, after a certain time at night, the caller may accept calls only from calling parties on the forward list 160. Thus, the system 100 allows great flexibility in the user selection of calling rules and lists. The system 100 allows the user to filter incoming calls in accordance with generalized rules or in accordance with highly specific rules.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, the system discussed herein uses, by way

of example, the Internet 134 to store the affiliation list 150. However, the system 100 can be implemented with other computer networks or as a portion of a telephone switch, such as the central office switch 116. The telephone service provider can provide a customer with an affiliation list and some means to control the list as a value-added telephone service. The central office switch 116 accesses the internal affiliation list and processes the incoming calls in accordance with the user-specified criteria contained therein. Accordingly, the invention is not limited except as by the appended claims.

CLAIMS

What is claimed is:

Sub A1

1. A system for user specification of call processing in a telephone network having a user telephone coupled to the telephone network, the system comprising:

a data structure contained within a computer network to store user-selectable criteria for call processing;

a computer network access port used by the telephone network to access the data structure; and

a controller to receive an incoming call designated for the user telephone and to process the incoming call in accordance with the user-selectable criteria, the controller accessing the data structure via the computer network access port and thereby applying the user-selectable criteria to the incoming call.

2. The system of claim 1 wherein the data structure stores the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, the controller using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

3. The system of claim 2 wherein the identification data is telephone automatic number identification data.

4. The system of claim 2 wherein the identification data is electronic mail identification data.

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5. The system of claim 1 wherein the user-selectable criteria indicates permission to process the incoming call, the controller processing the incoming call in accordance with the permission to generate a ring signal at the user telephone.

6. The system of claim 1 wherein the user-selectable criteria indicates no permission to process the incoming call, the controller blocking the incoming call and not generating a ring signal at the user telephone.

7. The system of claim 6 wherein the controller blocking the incoming call generates a busy signal at an origination telephone from which the incoming call is originated.

8. The system of claim 6, further comprising an outgoing message system having an outgoing message, the controller blocking the incoming call and playing the outgoing message at an origination telephone from which the incoming call is originated.

9. The system of claim 1 wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, the controller processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, the controller blocking the incoming call and not generating a ring signal at the user telephone during a time period other than the user-selected time period.

10. The system of claim 9, further comprising an outgoing message system storing a plurality of outgoing messages, the controller selecting one of the plurality of outgoing messages wherein the outgoing message system plays the selected outgoing message at an origination telephone from which the incoming call is originated.

11. The system of claim 10 wherein the incoming call arrives at a particular time other than the user-selected time period, the controller selecting the selected outgoing message based on the particular time of arrival of the incoming call.

12. The system of claim 1, further comprising a data editor to permit user entry and editing of the user-selectable criteria into the data structure.

13. The system of claim 12 wherein the data editor is a computer coupled to the computer network.

14. The system of claim 1 wherein the computer network is the Internet.

Sub A3

15. The system of claim 1 wherein the data structure comprises a plurality of data substructures each storing caller identification data and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification data associated therewith, the controller using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data and processing the incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

16. The system of claim 15, further comprising a data editor to permit user entry of the caller identification data into the data structure prior to receipt of the incoming call.

Sub A4

17. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will accept incoming calls, the controller processing the incoming call and signaling

the user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

18. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will not accept incoming calls, the controller blocking processing of the incoming call if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

19. The system of claim 18 wherein the controller blocking processing of the incoming call generates a busy signal at an origination telephone from which the incoming call is originated.

20. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will accept incoming calls subject to user-selected time restrictions, the controller processing the incoming call in accordance with the time restrictions and signaling the user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

21. A system for user specification of call processing in a telephone network having a user telephone coupled to the telephone network, the system comprising:

a data structure contained within a computer network and accessible by the telephone network, the data structure containing a plurality of caller lists each having associated user-selectable criteria for call processing;

a computer network access port used by the telephone network to access the data structure; and

a controller on the telephone network to receive an incoming call having origination data indicative of a caller and destination data indicating the call is designated for the user telephone, the controller accessing the data structure via the computer network access port to determine which of the plurality of caller lists contains the origination data, the controller processing the incoming call in accordance with the user-selectable criteria associated with the caller list containing the origination data.

22. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates permission to process the incoming call, the controller processing the incoming call in accordance with the permission to generate a ring signal at the user telephone.

23. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates no permission to process the incoming call, the controller blocking the incoming call and not generating a ring signal at the user telephone.

24. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates permission to process the incoming call during a user-selected time period, the controller processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, the controller blocking the incoming call and not generating a ring signal at the user telephone during time periods other than the user-selected time period.

25. The system of claim 21, further comprising a data editor to permit user entry and editing of the user-selectable criteria into the data structure.

26. The system of claim 21 wherein the computer network is the Internet.

27. The system of claim 21 wherein the telephone network is a public switched telephone network.

28. A computer-readable medium containing computer-executable instructions for call processing in a telephone network having a user telephone coupled to the telephone network by performing the steps of:

accepting an incoming call designated for the user telephone;

accessing a data structure contained within a computer network independent of the telephone network to retrieve user-selectable criteria for call processing stored within the data structure; and

processing the incoming call in accordance with the user-selectable criteria.

29. The computer-readable medium of claim 28, further comprising computer-executable instructions for performing the steps of generating call processing rules based on the user-selectable criteria and storing the call processing rules on the computer network in association with a caller list.

30. The computer-readable medium of claim 29 wherein the computer-executable instructions for generating call processing rules are performed on a computer coupled to the computer network.

31. The computer-readable medium of claim 28 wherein the data structure stores the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, the computer-readable medium containing computer-executable instructions for performing the steps accessing of the data structure using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

32. The computer-readable medium of claim 28 wherein the user-selectable criteria indicates permission to process the incoming call, the computer-readable medium containing computer-executable instructions for performing the steps of processing the incoming call comprising establishing a link with the user telephone and generating a ring signal at the user telephone.

33. The computer-readable medium of claim 28 wherein the user-selectable criteria indicates no permission to process the incoming call, the computer-readable medium containing computer-executable instructions for performing the steps of processing the incoming call comprising blocking the incoming call and not generating a ring signal at the user telephone.

34. The computer-readable medium of claim 35, further comprising computer-executable instructions for performing the step of generating a busy signal at an origination telephone from which the incoming call is originated.

35. The computer-readable medium of claim 34, further comprising computer-executable instructions for performing the steps playing an outgoing message at an origination telephone from which the incoming call is originated, the outgoing message indicating that the incoming call will not be connected to the user telephone.

36. The computer-readable medium of claim 28 wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, the computer-readable medium containing computer-executable instructions for performing the steps of processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, and blocking the incoming call and not generating a ring signal at the user telephone during time periods other than the user-selected time period.

37. The computer-readable medium of claim 28 wherein the data structure comprises a plurality of data substructures each storing caller identification data and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification data associated therewith, the computer-readable medium containing computer-executable instructions for performing the steps for accessing the data structure using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data and the processing the incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

38. A method for user specification of call processing in a telephone network having a user telephone coupled to the telephone network, the method comprising:

accepting an incoming call designated for the user telephone;

accessing a data structure contained within a computer network independent of the telephone network to retrieve user-selectable criteria for call processing stored within the data structure; and

processing the incoming call in accordance with the user-selectable criteria.

39. The method of claim 38, further comprising generating call processing rules based on the user-selectable criteria and storing the call processing rules on the computer network in association with a caller list.

40. The method of claim 39 wherein generating call processing rules is performed on a computer coupled to the computer network.

41. The method of claim 38 wherein the computer network is the Internet.

42. The method of claim 38 wherein the telephone network is a public switched telephone network.

43. The method of claim 38 wherein the data structure stores the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, the accessing of the data structure using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

44. The method of claim 38 wherein the user-selectable criteria indicates permission to process the incoming call, the processing the incoming call comprising establishing a link with the user telephone and generating a ring signal at the user telephone.

45. The method of claim 38 wherein the user-selectable criteria indicates no permission to process the incoming call, the processing the incoming call comprising blocking the incoming call and not generating a ring signal at the user telephone.

46. The method of claim 45, further comprising generating a busy signal at an origination telephone from which the incoming call is originated.

47. The method of claim 45, further comprising playing an outgoing message at an origination telephone from which the incoming call is originated, the outgoing message indicating that the incoming call will not be connected to the user telephone.

48. The method of claim 38 wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, the processing the incoming call comprising processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, and blocking the incoming call and not generating a ring signal at the user telephone during time periods other than the user-selected time period.

49. The method of claim 38 wherein the data structure comprises a plurality of data substructures each storing caller identification data and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification data associated therewith, the accessing the data structure using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data and the processing the incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

50. The method of claim 49 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will accept incoming calls, the processing the incoming call comprising signaling the

user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

51. The method of claim 49 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will not accept incoming calls, the processing the incoming call comprising not establishing a communication link with the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

SYSTEM AND METHOD FOR USER AFFILIATION
IN A TELEPHONE NETWORK

ABSTRACT OF THE DISCLOSURE

A telecommunication system combines telephone technology and Internet technology to establish one or more user-specified affiliation lists. The affiliation lists are stored on the Internet and are accessible by the user and by the telecommunication portion of the system. The affiliation lists are used to process incoming calls to the user's destination telephone number. A central office switch receives the call being directed to the destination telephone number and uses a communication link with the Internet to access the user's affiliation lists. The incoming call is processed in accordance with the user-specified rules in the affiliation lists. The user may accept all incoming calls, no incoming calls, or incoming calls only from specified parties. The call processing rules may be readily edited by the user and can also include alternative call processing rules that vary in accordance with the time of day or with the user's personal desires.

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WPN/MS/664005/454-AP/6

1

DECLARATION AND POWER OF ATTORNEY

As the below-named inventor, I declare that:

My residence, post office address, and citizenship are as stated below under my name.

I believe I am the original, first, and sole inventor of the invention entitled "SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK," which is described and claimed in the foregoing specification and for which a patent is sought.

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to herein (if any).

I acknowledge my duty to disclose information of which I am aware which is material to the patentability and examination of this application in accordance with 37 C.F.R. § 1.56(a).

We hereby appoint RICHARD W. SEED, Reg. No. 16,557; ROBERT J. BAYNHAM, Reg. No. 22,846; EDWARD W. BULCHIS, Reg. No. 26,847; GEORGE C. RONDEAU, JR., Reg. No. 28,893; DAVID H. DEITS, Reg. No. 28,066; WILLIAM O. FERRON, JR., Reg. No. 30,633; PAUL T. MEIKLEJOHN, Reg. No. 26,569; DAVID J. MAKI, Reg. No. 31,392; RICHARD G. SHARKEY, Reg. No. 32,629; DAVID V. CARLSON, Reg. No. 31,153; KARL R. HERMANNS, Reg. No. 33,507; DAVID D. MCMASTERS, Reg. No. 33,963; MICHAEL J. DONOHUE, Reg. No. 35,859; CHRISTOPHER J. DALEY-WATSON, Reg. No. 34,807; STEVEN D. LAWRENZ, Reg. No. 37,376; ROBERT G. WOOLSTON, Reg. No. 37,263; ELLEN M. BIERMAN, Reg. No. 38,079; PAUL T. PARKER, Reg. No. 38,264; ANN T. KADLECEK, Reg. No. 39,244; DAVID W. PARKER, Reg. No. 37,414; BRIAN G. BODINE, Reg. No. 40,520; FRANK ABRAMONTE, Reg. No. 38,066; E. RUSSELL TARLETON, Reg. No. 31,800; FREDERICK M. FLIEGEL, Reg. No. 36,138; THOMAS L. EWING, Reg. No. 34,328; KEVIN S. COSTANZA, Reg. No. 37,801; DALE C. BARR, Reg. No. 40,498; KEVIN S. ROSS, Reg. No. 42,116; PAUL F. RUSYN, Reg. No. 42,118; JOHN M. WECHKIN, Reg. No. 42,216; THOMAS E. LOOP, Reg. No. 42,810; STEPHEN J. ROSENMAN, Reg. No. 43,058; BRIAN L. JOHNSON, Reg. No. 40,033; JAMES D. WHITE, Registration No. 43,985; KIMTON N. ENG, Registration No. 43,605; SUSAN DENISE BETCHER, Registration No. 43,498; DENNIS M. de GUZMAN, Registration No. 41,702; and JANE E.R. POTTER, Registration No. 33,332, comprising the firm of SEED AND BERRY LLP, 6300 Columbia Center, Seattle, Washington 98104-7092; along with KATIE E. SAKO, Reg. No. 32,628, and DANIEL D. CROUSE, Reg. No. 32,022, of Microsoft Corporation, One Microsoft Way, Redmond, Washington 98052-6399, as our attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. Please direct all

correspondence to Michael J. Donohue at SEED AND BERRY LLP, 6300 Columbia Center, Seattle, Washington 98104-7092, telephone calls to (206) 622-4900 and telecopies to (206) 682-6031.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that the making of willfully false statements and the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

Stephen Mitchell Liffick

Date 3/22/99

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Citizenship	:	United States of America
P.O. Address	:	4729 51st Avenue South Seattle, Washington 98118

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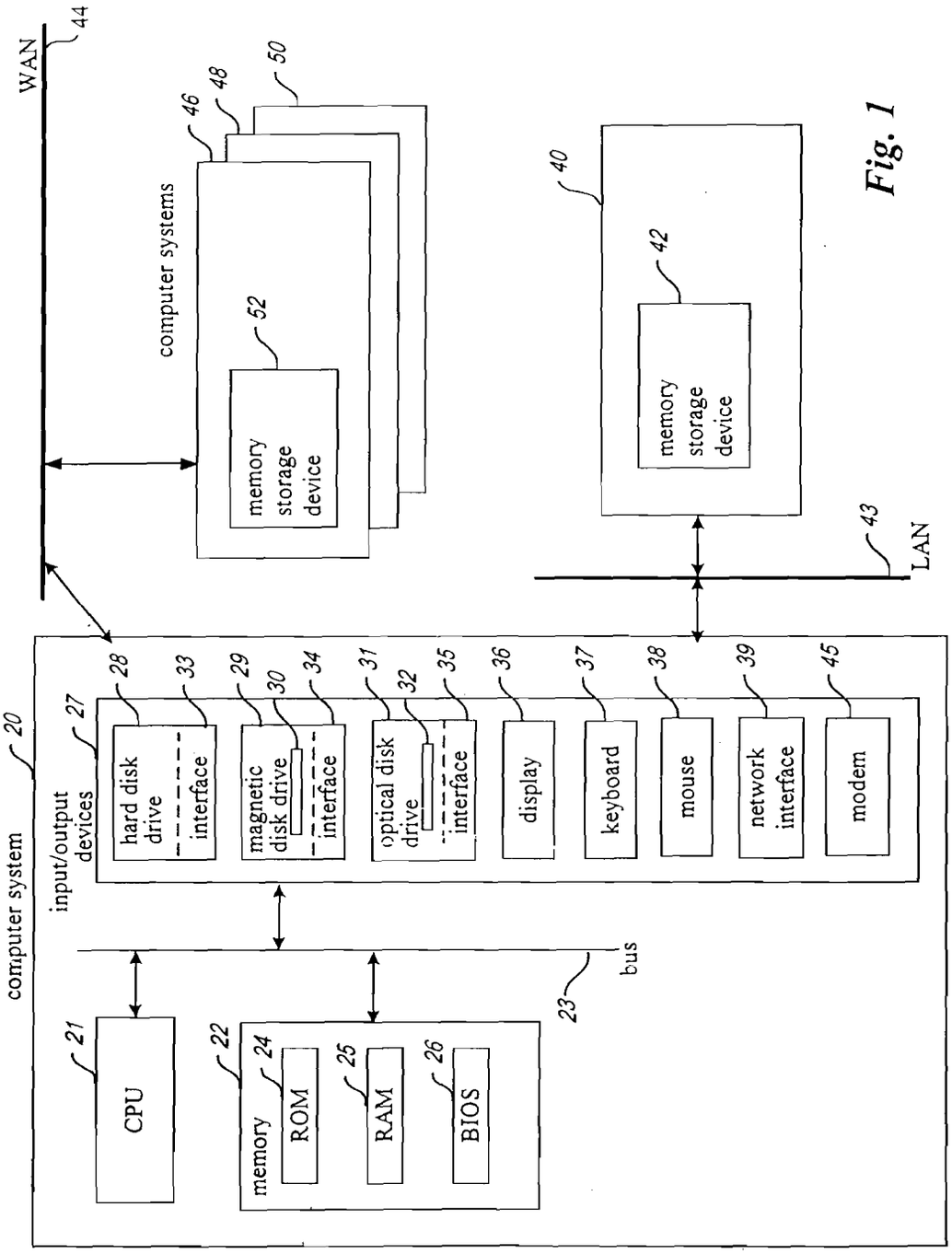

Fig. 1

EXPRESS MAIL NO.: EM150272273US
DOCKET NO.: 664005.454
APPLICANT: Stephen Mitchell Liffick
TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
Figure 1 of 8
Sheet 1 of 8

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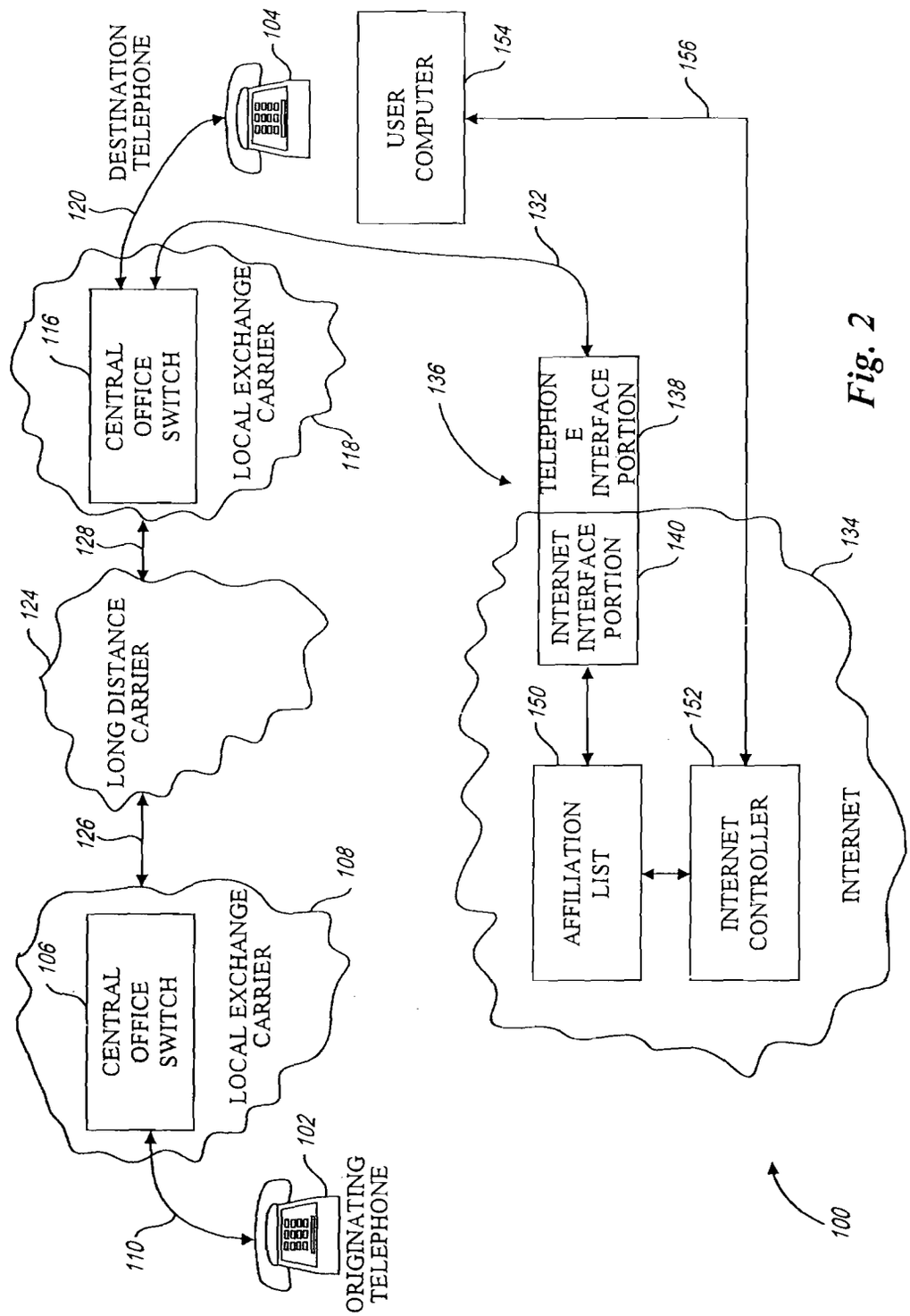

Fig. 2

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TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
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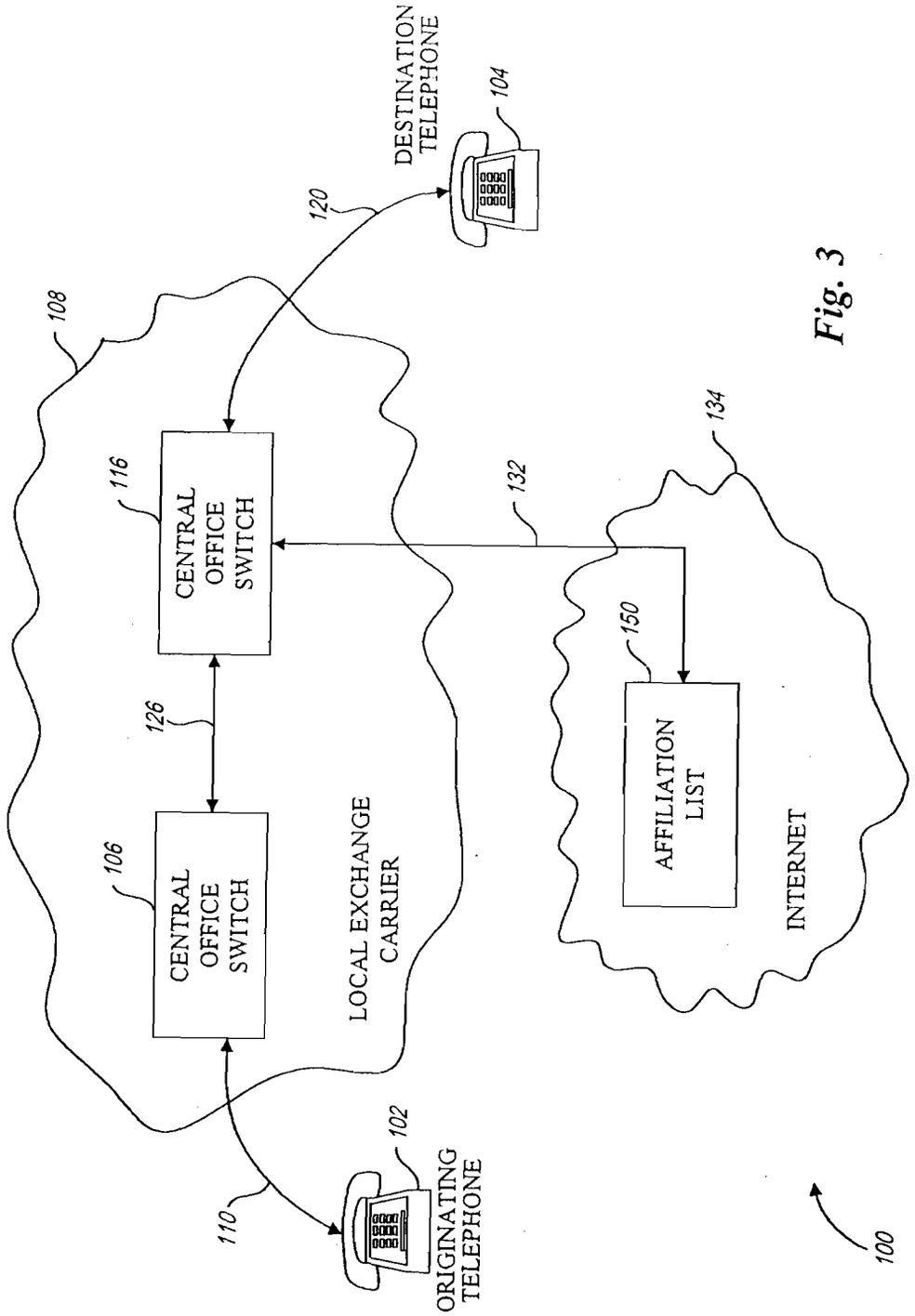

Fig. 3

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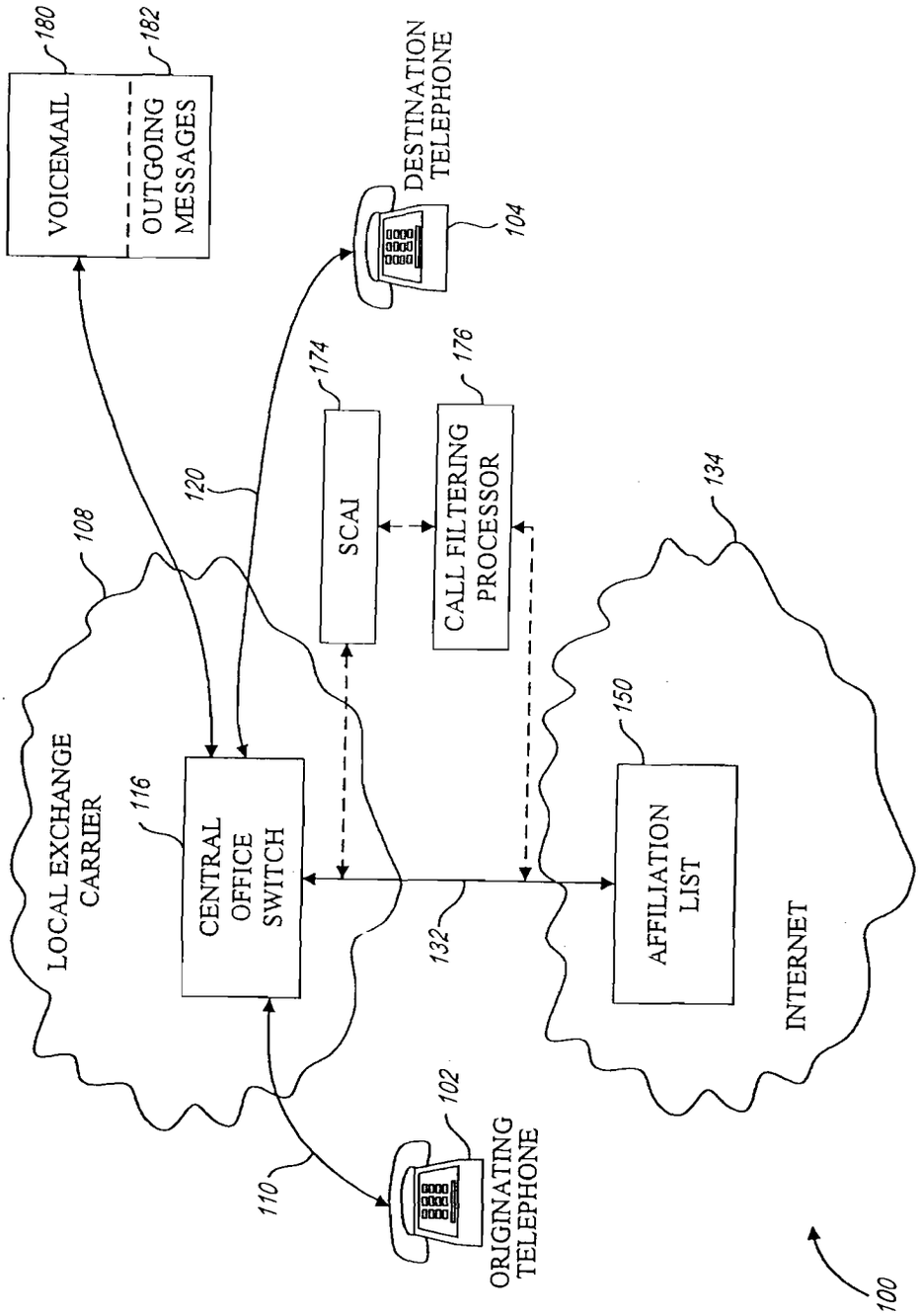

Fig. 4

EXPRESS MAIL NO.: EM150272273US
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TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
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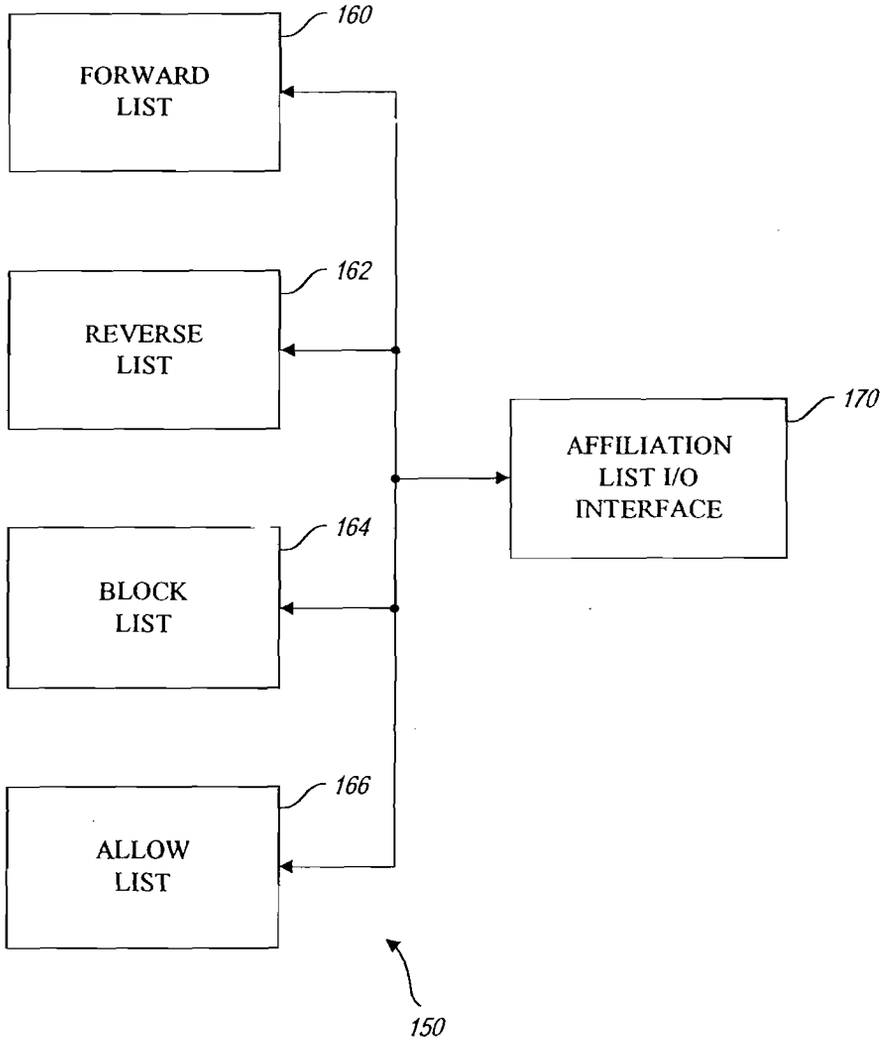

Fig. 5

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Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239

166

Fig. 6

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APPLICANT: Stephen Mitchell Liffick
TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
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Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235
Status	Allowed
.	
.	
.	
.	
Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236
Status	Blocked
.	
.	
.	
.	
Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239
Status	Conditional
Phone 1 -	Allowed
Phone 2 -	Allowed 9:00 a.m. - 11:30 a.m.
Phone 3 -	Blocked

150

Fig. 7

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CKET NO.: 664005.454
APPLICANT: Stephen Mitchell Liffick
TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
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Sheet 7 of 8

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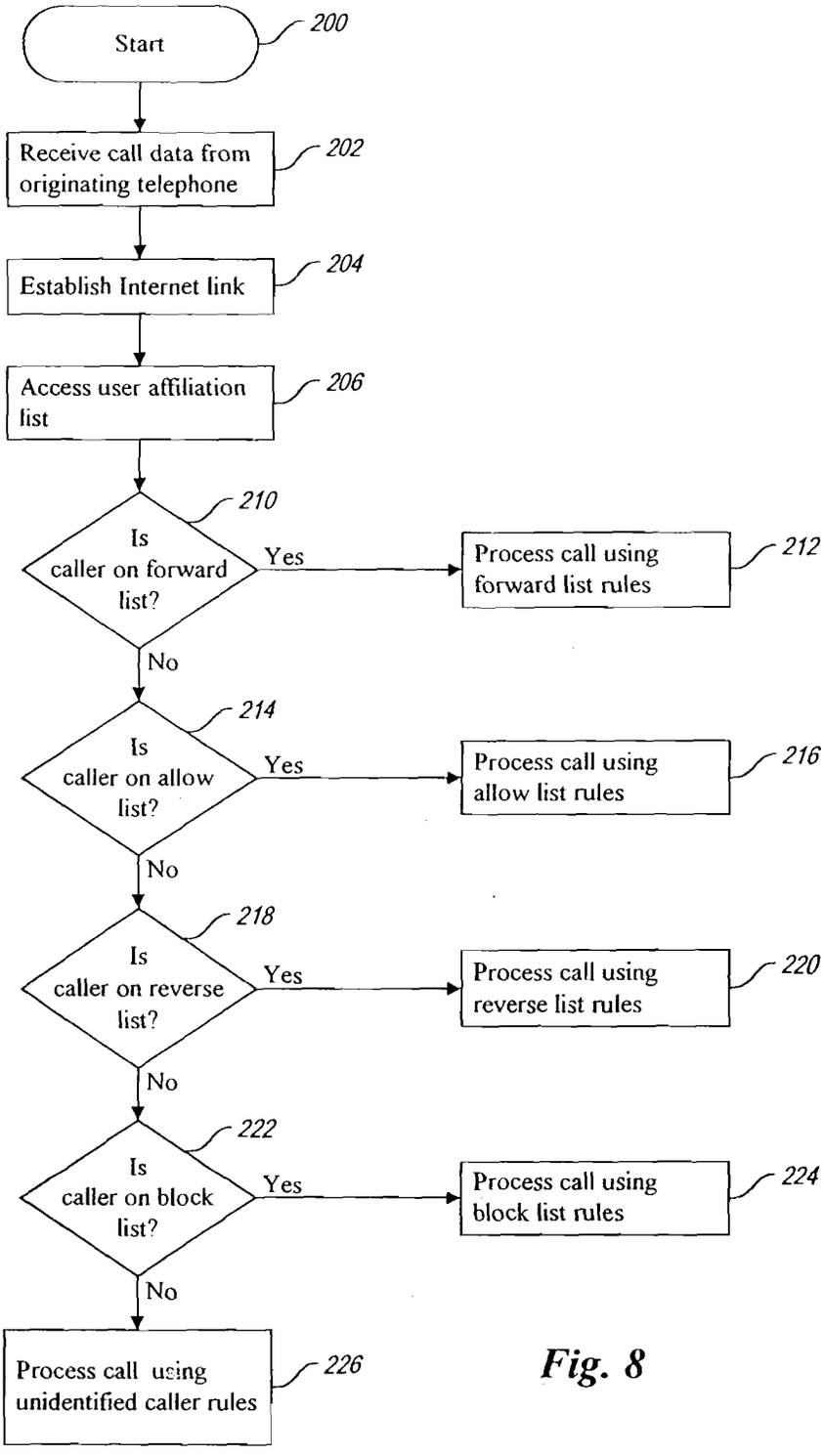

Fig. 8

EXPRESS MAIL NO.: EM150272273US
DOCKET NO.: 664005.454
APPLICANT: Stephen Mitchell Liffick
TITLE: SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK
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Sheet 8 of 8

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FILING DATE: *April 13, 1999*
PATENT NUMBER: *6,430,289*
ISSUE DATE: *August 06, 2002*

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M. Tarver

M. TARVER
Certifying Officer

MSAL 01427

JC542 U.S. PTO
09/291693
04/13/99

Class	Subclass
379	900

ISSUE CLASSIFICATION

PATENT NUMBER
6430289
6430289

U.S. UTILITY PATENT APPLICATION

O.I.P.E.	PATENT DATE
SCANNED TM 2 Q.A. KMG	AUG 0 6 2002

SECTOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
	379	900	2743	Smith

FILED WITH: ☐ DISK (CRF) ☐ FICHE
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PREPARED AND APPROVED FOR ISSUE

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ORIGINAL CLASS	ORIGINAL SUBCLASS	CROSS REFERENCE(S) CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)
379	900	379	142.15
		370	352

INTERNATIONAL CLASSIFICATION: H04M 1/00

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7/9/02 10 4/13/99

☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg.	Figs. Drwg.	Print Fig.	Total Claims	Print Claim for O.G.
	10	10	4	20	1

☐ a) The term of this patent subsequent to _____ (date) has been disclaimed.

(Assistant Examiner) (Date)

☐ b) The term of this patent shall not extend beyond the expiration date of U.S Patent. No. _____

Craighton Smith
Craighton Smith
Primary Examiner

(Primary Examiner) (Date)

NOTICE OF ALLOWANCE MAILED: 32602

ISSUE FEE (W)

Amount Due	Date Paid
1280	6-12-02

☐ c) The terminal ____months of this patent have been disclaimed.

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SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/291,693	04/13/99	379	2742	664005.455

APPLICANT

STEPHEN MITCHELL LIFFICK, SEATTLE, WA.

No

CONTINUING DOMESTIC DATA********
VERIFIED

No

371 (NAT'L STAGE) DATA********
VERIFIED

No

FOREIGN APPLICATIONS********
VERIFIED

IF REQUIRED, FOREIGN FILING LICENSE GRANTED 04/30/99

Foreign Priority claimed 35 USC 119 (a-d) conditions met	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☑ yes ☐ no ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged _____ Examiner's Initials _____ Initials	WA	10	58	4

ADDRESS

SEED AND BERRY LLP
6300 COLUMBIA CENTER
SEATTLE WA 98104-7092

TITLE

SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT NO. _____ for the following:	
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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
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FEE RECORD SHEET

04/21/1999 KHARLING 00000057 09291693

01 FC:101	760.00 OP
02 FC:102	78.00 OP
03 FC:103	684.00 OP

PTO-1556
(5/87)
*U.S. GPO: 1998-433-214/80404

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PTO/SB/05 (2/98)

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for nonprovisional applications under 37 CFR § 1.53(b))

Attorney Docket No.	664005.455
First Inventor or Application Identifier	Stephen Mitchell Liffick
Title	SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK
Express Mail Label No.	EM330174913US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231

1. [X] General Authorization Form & Fee Transmittal *(Submit an original and a duplicate for fee processing)*

2. [X] Specification [Total Pages] 46 *(preferred arrangement set forth below)*
   - Descriptive Title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure

3. [X] Drawing(s) *(35 USC 113)* [Total Sheets] 10

4. Oath or Declaration [Total Pages] 2
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 17 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)

5. [ ] Incorporation By Reference *(useable if box 4b is checked)* The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. [ ] Microfiche Computer Program *(Appendix)*

7. Nucleotide and Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. [ ] Computer-Readable Copy
   b. [ ] Paper Copy (identical to computer copy)
   c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. [X] Assignment Papers (cover sheet & document(s))
9. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [X] Power of Attorney
10. [ ] English Translation Document *(if applicable)*
11. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
12. [ ] Preliminary Amendment
13. [X] Return Receipt Postcard
14. [ ] Small Entity Statement(s) [ ] Statement filed in prior application, Status still proper and desired
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [X] Other: Certificate of Express Mail
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17. **If a CONTINUING APPLICATION,** *check appropriate box and supply the requisite information below and in a preliminary amendment*

[ ] Continuation [ ] Divisional [ ] Continuation-In-Part (CIP) of prior Application No.: _____

Prior application information: Examiner _____ *Group / Art Unit* _____

CORRESPONDENCE ADDRESS

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Seattle, Washington 98104-7092
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Respectfully submitted,

TYPED or PRINTED NAME Michael J. Donohue REGISTRATION NO. 35,859

SIGNATURE Michael J. Donohue Date April 13, 1998

user/float/wendy/0400

EXPRESS MAIL NO. EM330174913US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Stephen Mitchell Liffick
Title	:	SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK
Docket No.	:	664005.455
Date	:	April 13, 1999

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

GENERAL AUTHORIZATION UNDER 37 C.F.R. § 1.136(a)(3)
AND FEE TRANSMITTAL

Sir:

With respect to the above-identified application, the Assistant Commissioner is authorized to treat any concurrent or future reply requiring a petition for an extension of time under 37 C.F.R. § 1.136(a)(3) for its timely submission as incorporating a petition therefor for the appropriate length of time. The Assistant Commissioner is also authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 19-1090.

With respect to the above-identified application, the fee is calculated below:

For	Number filed	Number extra		Rate		
Basic Fee						**$ 760.00**
Total Claims	58	38	X	$ 18	=	**$ 684.00**
Independent Claims	4	1	X	$ 78	=	**$ 78.00**
Assignment Fee					+	**$ 40.00**
TOTAL						**$1,562.00**

A check in the amount of $1,562.00 is enclosed to cover the filing fee.

The Assistant Commissioner is authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required, or credit any overpayment, to Deposit Account No. 19-1090. A duplicate copy of this request is enclosed.

Date April 13, 1999

Michael J. Donohue
Registration No. 35,859

MJD:ww

SEED and BERRY LLP
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Seattle, Washington 98104-7092
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FAX: (206) 682-6031

user/float/wendy/0406

SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK

TECHNICAL FIELD

The present invention is directed generally to telecommunications and, more particularly, to a system and method for establishing a telephone communication link using status reporting information from an independent computer network.

BACKGROUND OF THE INVENTION

Telephone communication systems have increased in both size and complexity. Early telephone systems required a human operator to manually connect an originating telephone with a destination telephone. With the introduction of automatic switching technology, the need for human operators to connect each and every call disappeared. However, even automated switches did not provide the wide range of features available on most telephone systems, such as voicemail, caller identification, call waiting, call forwarding, three-way calling and the like. Most telephone systems today include these features and allow the customer to select one or more features to customize their telephone service. With features such as voicemail, the telephone switching system must recognize when the destination telephone is either busy or remains unanswered. If either of these conditions occur, the calling party is routed to the voicemail service associated with the destination telephone.

Despite these improvements, telephone systems are incapable of determining when a particular recipient (*i.e.*, a callee) may be available to receive a call. The caller has no choice but to place a call to the destination telephone and hope that the callee answers. Alternatively, the caller may leave a voicemail indicating a specific time at which the caller will place yet another call. This is an

undesirable activity since it requires multiple calls, thus utilizing telecommunication capabilities in an inefficient manner. In addition, repeated or failed attempts to actually reach the callee are a waste of human resources since the parties must often call back and forth to each other a number of times before actually reaching the desired party. Therefore, it can be appreciated that there is a significant need for a system and method that can establish a telephone communication link when both parties are available to communicate. The present invention provides this and other advantages as will be apparent from the following detailed description and accompanying figures.

SUMMARY OF THE INVENTION

A system to specify user-selectable criteria for call processing is implemented on a telephone system, such as a public switched telephone network (PSTN). The user-specified call processing criteria is stored on a network that is accessible by the user for data entry and/or editing, and is also accessible by the PSTN to determine whether call processing criteria exists for the particular caller. The Internet provides a readily available data structure for storage of the user-selectable call processing criteria. The user can establish a database stored on the Internet in association with the user's telephone number and indicating the user-selectable call processing criteria for one or more potential callers.

The caller may be identified by caller identification data, such as automatic number identification (ANI). Based on the destination telephone number and the caller identification data, the PSTN accesses the Internet and examines an affiliation list corresponding to the destination telephone number. If the caller identification data is present in the affiliation list, the call may be processed in accordance with the user-specified criteria for that particular caller.

Both the caller and callee can specify user-selectable call processing criteria. The potential callee can specify call processing criteria for all incoming

calls, such as providing a list of individuals from whom the person will accept calls, a list of individuals from whom the person will not accept calls, or conditional criteria, such as accepting or blocking calls during certain times of day or during certain periods of activity, such as when the user may be otherwise occupied and unwilling to accept an incoming call. In addition, the potential callee's computer activity may be monitored and the status of the computer as idle or active may be reported to the computer network. The caller indicates a desire to establish a communication link with the callee. The computer network accesses the caller's call processing criteria and the callee's call processing criteria. The call processing criteria for both the caller and callee are analyzed and when all conditions are met, a telephone communication link is established between an originating telephone associated with the caller and a destination telephone associated with the callee.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a computer system that includes components to implement the system of the present invention.

Figure 2 is a functional block diagram outlining the operation of the present invention.

Figure 3 is a functional block diagram of an alternate telecommunications configuration implementing the present invention.

Figure 4 is a functional block diagram of another alternative telecommunications configuration implementing the present invention.

Figure 5 is a functional block diagram providing details of the affiliation list of the system of Figure 2.

Figure 6 illustrates sample data provided in the list of Figure 5.

Figure 7 illustrates additional sample data provided in the list of Figure 3.

Figure 8 is a flowchart illustrating the operation of the system of Figure 2.

Figure 9 is a functional block diagram illustrating the system of the present invention to process a call in accordance with both a caller and callee call processing criteria.

Figure 10 is a flowchart illustrating the operation of the system of Figure 9.

DETAILED DESCRIPTION OF THE INVENTION

Existing telephone technology does not provide the telephone subscriber with a technique for controlling access to the user's telephone. Features such as caller ID identify the caller, but do not control access to the user's telephone. Thus, the conventional telephone system forwards the user to extreme options. The user may answer all incoming calls or may choose not to answer any incoming calls. However, the present invention provides selective options in between these two extremes. The present invention combines telephone technology with Internet technology to allow the user to "filter" incoming calls based on user-selected criteria. In particular, the user may establish a series of lists, stored on the Internet in association with the user's telephone, to filter incoming calls and thereby control access to the user's telephone. In addition, it is possible to monitor the activity or status of both a caller and a callee and establish a communication link between the caller's telephone and the callee's telephone when status data indicates that both are available for a telephone call.

Figure 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include

routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

With reference to Figure 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit 21. The system bus 23 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system 26 (BIOS), containing the basic routines that helps to transfer information between elements within the personal computer 20, such as during start-up, may be stored in ROM 24.

The personal computer 20 further includes input/output devices 27, such as a hard disk drive 28 for reading from and writing to a hard disk, not shown, a magnetic disk drive 29 for reading from or writing to a removable magnetic disk 30, and an optical disk drive 31 for reading from or writing to a removable optical disk 32 such as a CD ROM or other optical media. The hard disk drive 28, magnetic disk drive 29, and optical disk drive 31 are connected to the system bus 23 by a hard disk drive interface 33, a magnetic disk drive interface 34, and an optical

drive interface 35, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the personal computer 20. Although the exemplary environment described herein employs a hard disk, a removable magnetic disk 30 and a removable optical disk 32, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment. Other I/O devices 27, such as a display 36, keyboard 37, mouse 38, and the like may be included in the personal computer 20 and function in a known manner. For the sake of brevity, other components, such as a joystick, sound board and speakers are not illustrated in Figure 1.

The personal computer 20 may also include a network interface 39 to permit operation in a networked environment using logical connections to one or more remote computers, such as a remote computer 40. The remote computer 40 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the personal computer 20, although only a memory storage device 42 has been illustrated in Figure 1. The logical connections depicted in Figure 1 include a local area network (LAN) 43 and a wide area network (WAN) 44. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

When used in a LAN networking environment, the personal computer 20 is connected to the LAN 43 through the network interface 39. When used in a WAN networking environment, the personal computer 20 typically includes a modem 45 or other means for establishing communications over the wide area network 44, such as the Internet. The modem 45, which may be internal or external,

permits communication with remote computers 46-50. In a networked environment, program modules depicted relative to the personal computer 20, or portions thereof, may be stored in the remote memory storage device 42 via the LAN 51 or stored in a remote memory storage device 52 via the WAN 44. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

The present invention is embodied in a system 100 illustrated in the functional diagram of Figure 2. In a typical telephone communication, an originating telephone 102 is operated by the caller to place a call to a destination telephone 104. The originating telephone generates signals that are detected by a central office switch 106 operated by a local exchange carrier (LEC) 108. The LEC 108 is the telephone service provider for the calling party. The originating telephone 102 is coupled to the central office switch 106 via a communication link 110. As those skilled in the art can appreciate, the communication link 110 may be a hard-wired connection, such as a fiber optic, copper wire, or the like. Alternatively, the communication link 110 may be a wireless communication link if the originating phone 102 is a cellular telephone or some other form of wireless telephone.

Similarly, the destination telephone 104 is coupled to a central office switch 116 operated by a local exchange carrier (LEC) 118. The destination telephone 104 is coupled to the central office switch 116 via a communication link 120. The communication link 120 may be a hard-wired communication link or a wireless communication link, as described above with respect to the communication link 110. The present invention is not limited by the specific form of communication link or central office switch.

The LEC 108 establishes a communication link with the LEC 118. As illustrated in Figure 2, the communication link between the LEC 108 and the LEC 118 is through a long distance carrier (LDC) 124. The LEC 108 establishes a

communication link 126 with the LDC 124 which, in turn, establishes a communication link 128 with the LEC 118. If the telephone call from the originating telephone 102 to the destination telephone 104 is not a long distance call, the LDC 124 is not required. In this case, the communication link 126 may couple the LEC 108 directly to the LEC 118. The use of the system 100 with other telephone configurations are illustrated in other figures.

To place a telephone call, the caller activates the originating telephone 102 to dial in the telephone number corresponding to the destination telephone number 104, thereby establishing the communication link 110 with the central office switch 106. In turn, the central office switch 106 establishes the communication link 126 (via the LDC 124, if necessary), thus establishing a communication link with the central office switch 116. In a conventional telephone system, the central office switch 116 establishes the communication link 120 to the destination telephone 104 causing the destination telephone to ring. If the callee picks up the destination telephone, a complete communication link between the originating telephone 102 and the destination telephone 104 has been established. This is sometimes referred to as "terminating" the telephone call. The specific telecommunications protocol used to establish a telephone communication link between the originating telephone 102 and the destination telephone 104 is well known in the art and need not be described herein. The preceding description of techniques used to establish the telephone communication link are provided only as a basis for describing the additional activities performed by the system 100.

With the system 100, the central office switch 116 does not initially establish the telephone communication link 120 with the destination telephone 104 to cause the telephone to ring. Instead, the central office switch 116 establishes a communication link 132 with a computer network 134, such as the Internet. As those skilled in the art can appreciate, the Internet is a vast multi-computer network coupled together by data links having various communication speeds. Although the

Internet 134 may use a variety of different communication protocols, a well-known communication protocol used by the Internet is a Transmission Control Protocol/Internet Protocol (TCP/IP). The transmission of data on the Internet 134 using the TCP/IP is known to those skilled in the art and need not be described in greater detail herein.

The central office switch 116 utilizes conventional telephone communication protocols, which may be different from the TCP/IP communication protocols used by the Internet 134. The system 100 includes a communication interface 136 to translate data between the two communication protocols. The communication interface 136 includes a telephone interface portion 138 and an Internet interface portion 140. The telephone interface portion 138 is coupled to the central office switch 116 via the communication link 132 such that communications occurring on the communication link 132 utilize the telephone communication protocol. The Internet interface portion 140 communicates via the Internet using conventional communication protocols, such as TCP/IP.

The communication interface 136 may be implemented on a computing platform that functions as a server. The conventional components of the computing platform, such as a CPU, memory, and the like are known to those skilled in the art and need not be described in greater detail herein. The telephone interface portion 138 may comprise an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) to communicate with the central office switch 116. The ISDN PRI, which may be implemented on a plug-in computer card, provides information to the telephone interface portion 138, such as automatic number identification (ANI), dialed number identification service (DNIS), and the like. As is known, ANI provides the telephone number of the caller's telephone (*e.g.*, the originating telephone 102) while the DNIS allows the number the caller dialed (*e.g.*, the destination telephone 104) to be forwarded to a computer system. These data may be considered "keys" which may be used by the system 100 to identify the

caller and the callee. Thus, the central office switch 116 provides information which may be used to access the affiliation list 150 for the destination telephone 104.

The Internet interface portion 140 may be conveniently implemented with a computer network card mounted in the same computing platform that includes the ISDN PRI card. However, it is not necessary for satisfactory operation of the system 100 that the interface cards be co-located in the same computing platform. It is only required that the telephone interface portion 138 communicate with the Internet interface portion 140. The Internet interface portion 140 receives the incoming data (*e.g.*, the ANI, DNIS, and the like) and generates Internet compatible commands. The specific form of the Internet commands using, by way of example, TCP/IP, are within the scope of knowledge of one skilled in the art and need not be described herein. As will be described below, data provided by the central office switch 116 will be used to access data on the Internet and use that data to determine the manner in which a telephone call will be processed.

The Internet 134 stores an affiliation list 150, which may be established by the user of the destination telephone 104. Data stored within the affiliation list 150 is accessed by the central office switch 116 to determine the manner in which the call from the originating telephone 102 will be processed. Details of the affiliation list 150 are provided below. The Internet 134 also includes an Internet controller 152 which communicates with a callee computer 154 via a network link 156. The communication between the callee computer 154 and the Internet 134 is a conventional communication link used by millions of computers throughout the world. For example, the callee computer 154 may be a personal computer (PC) containing a communication interface, such as a modem (not shown). The network link 156 may be a simple telephone communication link using the modem to communicate with the Internet 134. The Internet controller 152 functions in a conventional manner to communicate with the callee computer 154 via the

network link 156. Although the communication link 132 and the network link 156 are both communication links to the Internet, the network link 156 is a conventional computer connection established over a telephone line, a network connection, such as an Ethernet link, or the like. This conventional network link 156 is significantly different from the communication link 132 between the central office switch 116 and the Internet 134. The central office switch 116 establishes the communication link 132 to access data on the Internet and uses that accessed data to determine how to process an incoming call for the destination telephone 104. The network link 156 is a computer-to-computer connection that may simply use a telephone as the physical layer to establish the network link.

In the system 100, the central office switch 116 receives an incoming call from the originating telephone 102 via the central office switch 106 and, optionally, the LDC 124. Rather than immediately establishing the communication link 120 and generating a ring signal at the destination telephone 104, the central office switch 116 establishes the communication link 132 and communicates with the Internet 134 via the communication interface 136. The purpose of such communication is to access the affiliation list 150 and thereby determine the manner in which the user of the destination telephone 104 wishes calls to be processed.

Figure 3 illustrates the system 100 for a telephone system configuration in which the originating telephone 102 and the destination telephone 104 are both serviced by the same local exchange carrier 108. The originating telephone 102 establishes the communication link 110 with the central office switch 106 in the manner described above. The central office switch 106 establishes the communication link 126 directly with the central office switch 116 without the need for the LDC 124 (see Figure 2). The central office switch 116 operates in the manner described above. That is, the central office switch 116 does not immediately establish the communication link 120, but does establish the communication link 132 with the Internet 134. For the sake of simplicity, Figure 3

does not illustrate the communication interface 136. However, those skilled in the art will appreciate that the central office switch 116 accesses the affiliation list 150 via the communication interface 136 (see Figure 2).

For the sake of simplicity, Figure 3 also does not show the Internet controller 152 and the callee computer 154. However, those skilled in the art can appreciate that those portions of the system may also be present in the embodiment illustrated in Figure 3. However, it should be noted that the callee computer 154 and the Internet controller 152 need only be used to edit the affiliation list 150. The call processing by the central office switch 116 does not depend on the presence of the Internet controller 152 or the callee computer 154. That is, the central office switch 116 accesses the affiliation list 150 via the communication interface 136 regardless of the presence of the callee computer 154.

In yet another telephone system configuration, illustrated in Figure 4, the originating telephone 102 and the destination telephone 104 are not only serviced by the same local exchange carrier 108, but are connected to the same central office switch 116. However, the fundamental operation of the system 100 remains identical to that described above with respect to accessing the affiliation list 150. That is, the originating telephone 102 establishes the communication link 110 with the central office switch 116. However, the central office switch 106 need not establish the communication link 126 with any other central office switch since the destination telephone 104 is also connected to that same central office switch.

In this telephone system configuration, the central office switch 116 accesses the affiliation list 150 on the Internet 134 via the communication link 132 (see Figure 2) in the manner described above. For the sake of simplicity, Figure 4 does not illustrate the communication interface 136. However, those skilled in the art will recognize that the communication interface 136 operates to convert communication signals between telephone protocol used by the central office switch 106 and the Internet communication protocol used by the Internet 134. In addition,

Figure 4 also does not illustrate the Internet controller 152 and the callee computer 154. As noted above with respect to Figure 3, the Internet controller 152 and callee computer 154 are not necessary for proper operation of the system 100. The callee computer 154 is typically used in the system 100 to edit the affiliation list 150.

The affiliation list 150 is illustrated in greater detail in the functional block diagram of Figure 5. The affiliation list comprises a series of sublists, illustrated in Figure 3 as a forward list 160, a reverse list 162, a block list 164, and an allow list 166. The forward list 160 contains a list of Internet subscribers whose Internet activity a user wishes to monitor. This list is sometimes referred to as a "buddy" list. When the user operates the callee computer 154 on the Internet 134, the Internet controller 152 accesses the forward list 160 via an affiliation list input/output (I/O) interface 170 to determine which Internet subscribers contained within the forward list are currently active on the Internet 134. In conventional Internet operation, the Internet controller 152 sends a message to the callee computer 154 indicating which Internet subscribers on the forward list 160 are currently active on the Internet 134.

The forward list 160 is a list of Internet subscribers whose activity is reported to the user. Other Internet subscribers may have their own forward list (not shown) and may monitor the Internet activity of the user. When the user accesses the Internet 134 with the callee computer 154, that activity can be monitored by others. With the system 100, it is possible to determine who is monitoring the user's Internet activity. The reverse list 162 contains a list of Internet subscribers who have placed the user in their forward list. That is, the reverse list 162 contains a list of Internet subscribers who have placed the user in their buddy list. With the reverse list 162, the user can determine who is monitoring his Internet activity.

The block list 164 contains a list of Internet subscribers that the user does not want to monitor his Internet activity. That is, the user's Internet activity will not be provided to any Internet subscriber contained in the block list 164. Thus,

even if a particular Internet subscriber has placed the user on their forward list, the presence of that particular Internet subscriber's name on the block list 164 will prevent the user's Internet activity from being reported to the particular Internet subscriber. The use of the block list 164 provides certain security assurances to the user that their Internet activity is not being monitored by any undesirable Internet subscribers.

The allow list 166 contains a list of Internet subscribers for whom the user may wish to communicate with but whose Internet activity the user does not wish to monitor.

The system 100 combines the capabilities of the affiliation list 150 with telephone switching technology to filter incoming calls to the destination telephone 104. For example, the user may specify that only calls from Internet subscribers contained in the forward list 154 may contact the user via the destination telephone 104. Alternatively, the user may specify that a calling party whose name is contained in the forward list 160 or the allow list 166 may place a call to the destination telephone 104. As will be discussed in greater detail below, the system 100 allows the user to create general conditional processing, such as blocking calls or allowing calls. However, the user can also create specific conditional processing for individual callers or based on the user's current status or preferences.

The central office switch 116 accesses the affiliation list 150 via the communication link 132 and determines whether the calling party is in a list (*e.g.*, the forward list 160) that the user wishes to communicate with. If the calling party is contained within an "approved" list, the central office switch 116 establishes the communication link 120 and sends a ring signal to the destination telephone 104. Thus, the user can pick up the telephone with the knowledge that the calling party is an individual with whom the user wishes to communicate.

Conversely, if the calling party is not contained within an approved list, such as the forward list 160 or the allow list 166, the central office switch 116

will not establish the communication link 120 with the destination telephone 104. Thus, the user will not be bothered by undesirable phone calls. In one embodiment, the central switch office simply will not establish the communication link 120 and the calling party will recognize that the call did not go through. Alternatively, the central office switch 116 may generate a signal indicating that the destination telephone 104 is busy. In this alternative embodiment, the calling party will receive a busy signal on the originating telephone 102. Thus, the user has the ability to filter incoming calls by creating a list of those individuals with whom the user wishes to communicate.

It should be noted that the affiliation list 150 may be dynamically altered by the user to add or delete individuals, change individuals from one list to another, or to change the call processing options for a particular list depending on the user's preferences. For example, the user may want to accept all calls from any source at certain times of the day. Under these circumstances, the user can edit the allow list 166 to accept calls from any calling party. Alternatively, the user may still maintain the block list 164 such that calls will not be processed from certain specified parties even if the user is willing to accept calls from any other source. Under other circumstances, the user may not wish to communicate with any individuals. In this instance, the user may indicate that all calling parties are on the block list 164. Thus, the central office switch 116 will access the Internet 134 in real-time and review data in the affiliation list 150 to thereby process incoming calls for the user in accordance with the rules present in the affiliation list.

The discussion above provides examples of the central office switch 116 processing calls from a calling party in accordance with their presence or absence of certain lists in the affiliation list 150. For example, a call from a party on the forward list 160 will be connected to the destination telephone 104 (see Figure 2) while a call from a party on the block list 164 will not be put through to the destination telephone. However, the system 100 also allows the selection of call

processing options on an individual basis rather than simply on the presence or absence in a particular list. For example, the user can edit the allow list 166 to specify that certain individuals are "allowed" while other individuals may be allowed, conditionally allowed, or blocked all together. If the individual calling party has an associated status indicating that they are allowed, the central office switch 116 will process the incoming call and connect it to the destination telephone 104. If the individual calling party has an associated blocked status, the central office switch 116 will not process the call and will not connect it to the destination telephone 104.

Furthermore, the user may attach conditional status to individual callers or to calling lists. Conditional status may be based on factors, such as the time of day, current availability of the user, work status, or the like. For example, the user may accept calls from certain work parties during specified periods of the day (*e.g.*, 9:00 a.m. - 11:00 a.m.), block calls from selected calling parties during other periods of time (*e.g.*, 12:00 - 1:00 p.m.), or allow calls during a business meeting only from certain calling parties (*e.g.*, the boss). These conditional status criteria may be applied to individuals or to one or more lists in the affiliation list 150.

Figure 6 illustrates sample data entries in the allow list 166. The allow list 166 may include data, such as a name, Internet subscriber name, and one or more phone numbers associated with the individual data entry. It should be noted that the calling party need not have an Internet subscriber name for proper operation of the system 100. That is, the central office switch 116 accesses the allow list 166 utilizing the calling party number and need not rely on any email addresses or other Internet subscriber identification for proper operation. The allow list 166 may also include an email alias in addition to or in place of the Internet subscriber name. Some Internet subscribers prefer to "chat" with other subscribers utilizing an alias rather than their actual Internet subscriber name. The data of Figure 6 illustrates one

possible embodiment for the allow list 166. However, those skilled in the art can appreciate that the allow list 166 may typically be a part of a large database (not shown). Database operation is well known in the art, and need not be described in greater detail herein. The database or other form of the forward list 160 may be satisfactorily implemented using any known data structure for storage of data. For example, the various lists (*e.g.*, the allow list 166, the reverse list 162, the block list 164 and the allow list 166) may all be integrated within a single database structure. The present invention is not limited by the specific structure of the affiliation list 150 nor by the form or format of data contained therein.

Rather than incoming call filtering on the basis of presence in a particular list, such as the allow list 166, as illustrated in Figure 6, the affiliation list 150 may contain status data on an individual basis. In this event, the central office switch 116 (see Figure 2) processes the incoming call in accordance with the designated status for that individual. In the example illustrated in Figure 7, the affiliation list 150 contains one individual with an "allowed" status, one individual with a "blocked" status, and one individual with a "conditional" status based on user-selected criteria. In the example of Figure 7, the user-selected criteria may be based on the particular phone from which the call is originating as well as the time of day in which the call is originated. For example, the user may wish to allow all calls from a particular number, such as an caller's work number. However, calls from another number, such as the caller's home phone, may be blocked. Other calls, such as from a caller's cellular telephone, may be allowed only at certain times of day. Figure 7 is intended to illustrate some of the call processing options that are available to the user. As can be appreciated, a variety of different conditional status criteria may be applied to one or more potential calling parties. However, a common feature of the system 100 is that the telecommunication system (*e.g.*, the central office switch 116) determines calling party status on the basis of information stored on the Internet and processes the incoming call in accordance

with the user-specified criteria. Moreover, the system 100 operates in real-time to process the incoming call in accordance with the user-specified criteria.

The Internet 134 may be conveniently used as a storage area for the caller specified criteria. The advantage of such data storage on the Internet is that the data is widely accessible to the user. This provides a convenient mechanism for entering new caller data or editing existing caller data. The user can access the affiliation list 150 with the callee computer 154 via the network link 156. In contrast, the central office switch 116 may access the affiliation list 150 via the communication link 132, which may typically be a high-speed communication link. In addition, Figures 2, 4, and 5 illustrate the central office switch 116 as the telecommunication component that accesses the Internet 134. It is convenient for operational efficiency to have the central office switch (*e.g.*, the central office switch 116) to which the destination telephone 104 is connected perform such Internet access. It is at this stage of the telephone call processing that the telecommunication system may most conveniently determine the user-specified caller status. However, those skilled in the art will recognize that the status check may be performed by other portions of the telecommunication system, such as the central office switch 106, the LDC 124, or the like. Thus, the present invention is not limited by the particular telecommunication component that establishes the communication link with a network which the user-specified caller status data is stored.

In addition, the system 100 can be readily implemented as an "add-on" component of the telecommunication system and need not be integrated with the central office switch 116. For example, the conventional central office switch provides the ability to divert calls based on certain call conditions, such as "Call Forward No Answer," which may be used to divert an incoming call to voicemail or "Call Forward Busy," which may also divert the incoming call to voicemail. To implement the system 100 with an add-on processor, the system may optionally

include a Switch to Computer Applications Interface (SCAI) 174 and a call processor 176. The dashed lines of Figure 4 are intended to illustrate an alternative configuration of the system 100. This alternative configuration can also be implemented with other telephone system configurations, such as illustrated in Figures 2 and 3. The SCAI 174 is a telecommunication protocol that allows switches to communicate with external computers. Data, such as caller and callee telephone numbers, and status information, such as Call Forward Busy, are provided to the SCAI 174 by the central office switch 116.

The call processor 176 performs the functions described above to process the call in accordance with the user-specified criteria. That is, the call processor 176 receives caller and callee data from the SCAI 174 and accesses the affiliation list 150 via the communication interface 136 (see Figure 2). The call processor 176 uses user-specified call processing criteria to generate instructions for the central office switch 116. The instructions are provided to the central office switch 116 via the SCAI 174. Those skilled in the art will appreciate that the SCAI 174 is but one example of the Open Application Interface (OAI) that can be used with the central office switch 116.

As noted above, the system 100 can process a call intended for the destination telephone 104, block a call, or generate a busy signal at the originating telephone 102. However, the system 100 also operates with voicemail and permits a number of different customized outgoing messages. Figure 4 illustrates a voicemail system 180 having a storage area containing one or more outgoing messages 182. For example, the voicemail system 180 can play an outgoing message 182 informing the caller that "the party you are calling only accepts calls from designated callers. Please leave a message." If calls are blocked only at certain times, the outgoing message 182 can say "the party you are calling does not accept calls between 11:30 a.m. and 1:00 p.m. Please leave a message or call back after 1:00 p.m." The outgoing message can also reflect callee availability by playing a message such as

"The party you are calling is in a meeting. Please leave a message or call back in X minutes" where X reflects the amount of time before the meeting is expected to end. That information can be manually provided to the affiliation list 150 by the user or automatically derived from a computerized scheduling program on, by way of example, the callee computer 154 (see Figure 2).

Computerized scheduling programs, such as Microsoft® Schedule Plus, can be used on the callee computer 154 (see Figure 2). It is known that such scheduling programs can be accessed via a computer network or downloaded to a hand-held computing device to track appointments. The system 100 can access such computerized scheduling programs and download appointments and scheduled meetings into the affiliation list 150. The outgoing messages 182 can be automatically selected on the basis of the user's computerized schedule. Thus, the system 100 permits the user to schedule his day (*e.g.*, meetings, lunch time, in office/available for calls, in office/unavailable for calls, etc.) on a computerized scheduling program and to process calls in accordance with the computerized schedule and even select outgoing messages automatically based on the user's schedule.

The operation of the system 100 is illustrated in the flowchart of Figure 7. At a start 200, the calling party has placed a call from the originating telephone 102 (see Figure 2) to the destination telephone 104. In step 202, the central office switch 116 has received call data from the originating telephone 102. The received call data includes the destination telephone number of the destination telephone 104 and identification data indicating the originating telephone 102 as the source of the present call. Use of automatic number identification (ANI) is a well-known technique for providing identification data indicating the originating telephone 102 as the source of the present call. While the specific implementation of ANI data, sometimes referred to as caller ID, may not be uniformly implemented throughout the United States, the ANI data is typically delivered between the first

and second rings. In the present invention, the central office switch 116 (see Figure 2) does not initiate a ring signal to the destination telephone 104 until after determining the status of the calling party based on the ANI. In future implementations, telecommunication companies may transmit other forms of caller identification, such as caller name, Internet address, email alias, or the like. The system 100 operates satisfactorily with any form of caller identification. The only requirement for the system 100 is that some form of caller identification be provided. The call is processed in accordance with the user-specified criteria in the affiliation list 150 for the identified caller.

In step 204, the central office switch 116 (see Figure 2) establishes the communication link 132 with the Internet 134. Although step 204 illustrates the system 100 as actively establishing the communication link 132 with the Internet 134, those skilled in the art will recognize that the system 100 can utilize a continuous high-speed data link between the central office switch and the Internet. Thus, it is not necessary to establish a network link for each and every incoming call processed by the central office switch 116. As previously described, the communication interface 136 translates data between the telephone protocol and the Internet protocol. In step 206, the system 100 accesses the affiliation list 150 for the user (*i.e.*, the called party). In an exemplary embodiment, the telephone number of the destination telephone 104 or other callee identification is used as an index or pointer to a specific location within the database where the affiliation list 150 for the particular user may be found. Database operation in general, and techniques for locating specific items within a database in particular are known to those skilled in the art and need not be described herein.

In decision 210, the system 100 determines whether the caller identification data is on the forward list 160 (see Figure 3). If the caller identification data is present in the forward list, the result of the decision 210 is

YES. In that event, the system 100 proceeds to Figure 6B where the call is processed in accordance with the rules associated with the forward list 160.

If the caller identification data is not present in the forward list 160 (see Figure 3), the result of decision 210 is NO. In that event, the system 100 moves to decision 212 to determine whether the caller identification data is in the allow list 166. If the caller identification data is present in the allow list 166, the result of decision 214 is YES. In that event, the system 100 proceeds to decision 216 where the call is processed in accordance with the rules associated with the allow list 166. If the caller identification data is not present in the allow list 166, the result of decision 216 is NO.

In decision 218, the system 100 determines whether the caller identification data is present in the reverse list 162. If the caller identification data is present in the reverse list 162, the system 100 proceeds to the step 220 where the call is processed in accordance with the rules associated with the reverse list 162. If the caller identification data is not present in the reverse list, the result of decision 218 is NO. In that event, the system moves to decision 216 to determine whether the caller is present on the block list 164. If the caller is present on the block list 164, the result of decision 222 is YES. In that event, the system proceeds to step 224 where the call is processed in accordance with the rules associated with the block list. If the caller identification data is not present in the block list 164, the result of decision 222 is NO. This indicates that the caller identification data is not present in any of the user-specified lists in the affiliation list 150. In that event, the system moves to step 226 where the call may be processed in accordance with user-specified rules of processing anonymous or unidentified calls. The flowchart of Figure 8 illustrates the operation of the system 100 with multiple lists wherein the call processing rules are designated for each list. In this embodiment, the call is processed on the basis of the presence or absence of the caller identification data in a particular list. However, as previously discussed, the affiliation list 150 (see

Figure 5B) may include user-specified status criteria for individual callers. In this embodiment, the system 100 processes the call on the basis of the user-specified status criteria associated with the individual caller rather than on the basis of the caller's presence or absence in a specific list. In that event, the system 100 may simply access the user affiliation list (see step 206 in Figure 7) and process the call in accordance with the user-specified status criteria for the individual caller. If the caller identification data is not present in the affiliation list 160, the call may be processed using user-specified call processing criteria for unidentified callers, as shown in step 226.

Thus, the system 100 allows the user to specify call processing rules for a plurality of different caller lists or for individual callers within a list. The caller lists may be readily edited in accordance with the changing desires of the user. The user may alter the call processing rules in accordance with various times of day, work conditions, or even the personal mood of the user. For example, the user may process all calls during certain times of the day, such as when the user is at work. However, when the user arrives home, subsequent calls may be processed in accordance with a different set of rules, such as accepting no calls during dinner time or after a certain time at night.

These rules may be applied differentially to different ones of the list in the affiliation list 150. For example, the user may accept calls from any calling party on the forward list 160 (see Figure 3) or the allow list 166 during the evening hours. However, after a certain time at night, the caller may accept calls only from calling parties on the forward list 160. Thus, the system 100 allows great flexibility in the user selection of calling rules and lists. The system 100 allows the user to filter incoming calls in accordance with generalized rules or in accordance with highly specific rules.

In addition to filtering incoming calls to the destination telephone 104, the system 100 can monitor the status or activity of both the caller and the callee and

establish a communication link between the originating telephone 102 and the destination telephone 104 when the status data indicates that both the caller and callee are available for a telephone conversation. The system 100 has been previously described with respect to callee status monitoring and processing of incoming calls in accordance with the user-selected (*i.e.*, the callee-selected) call processing criteria. Similar status monitoring can be performed for the caller. As illustrated in Figure 9, the system 100 may include a caller computer 184, which is coupled to the Internet via the communication link 132. For the sake of clarity, Figure 9 illustrates the callee computer 154 and the caller computer 184 as connected to the Internet 134 through a single Internet controller 152. However, those skilled in the art will appreciate that the Internet 134, or any computer network, includes many network controllers that function as a gateway to the network. Thus, the system 100 typically includes a large number of Internet controllers 152.

In addition, for the sake of clarity, Figure illustrates only a single affiliation list 150. However, those skilled in the art will appreciate that separate affiliation lists exist for the originating telephone 102 and the destination telephone 104. The central office switch 116 (or the call processor 176) access the appropriate affiliation list via the network connection 132 and apply the appropriate call processing rules for each telephone.

Figure 9 also illustrates a keyboard 154a and mouse 154b coupled to the callee computer 154 for use in a conventional fashion. Similarly, the caller computer 184 includes a keyboard 184a and a mouse 184b. The computer operating system, such as the Windows® operating system, is capable of monitoring user activity on the computer. For example, the operating system on the callee computer 154 can detect user activity on the keyboard 154a or the mouse 154b. By monitoring this activity, the operating system can determine the user's status and activate certain software programs, such as a screen saver, when no user activity has

been detected for a certain period of time. Under these circumstances, the operating system may determine that the callee computer 154 has entered an "idle" state. Similarly, operating system on the caller computer 184 may perform similar functions to determine user activity on the caller computer. Using the principles of the present invention, the callee computer 154 and the caller computer 184 may report the current status to the affiliation list 150 for each respective computer.

The system 100 can monitor computer activity and generate signals to both the originating telephone 102 and the destination telephone 104 when the callee computer 154 and the caller computer 184 are not in the idle state. The fact that both computers are not in the idle state indicates that the users of each respective computer may be available for a telephone conversation. In addition, the system 100 can apply call processing rules that may also govern operation of the telephone portion of the system 100. For example, the callee computer 154 may be in an "active" state (as opposed to the idle state) but the user has indicated that he should not be disturbed at the present time. Thus, the central office switch 116 or the call processor 176 accesses the affiliation list 150 for the destination telephone 104 to determine the callee-selected call processing criteria. In addition, the central office switch 116 or the call processor 176 can access the affiliation list 150 for the caller and apply any caller-selected call processing rules. For example, the caller computer 184 may be in the active state, but the caller status in the affiliation list 150 may indicate that the caller is in a meeting and is, therefore, unavailable for a telephone call with the callee. In this manner, the system 100 can monitor computer activity and determine when the caller and callee may both be available for a telephone call and further applies call processing criteria for both the caller and callee. The call processing criteria for the caller and callee as well as the current status of the callee computer 154 and the caller computer 184 are stored within the respective affiliation lists 150 on the Internet 134. This data may be accessed by the

central office switch 116 or the call processor 176 via the network connection 132 in the manner previously described.

In operation, the system allows a caller to indicate a desire to establish a telephone communication link with a specified callee. The caller can use the originating telephone 102 or the caller computer 184 to initiate the call processing by the system 100. The system 100 monitors the caller and callee activities and call processing rules and, when appropriate for both parties, establishes a telephone communication link by sending signals from the central office switch 116 to the originating telephone to generate a ring signal. The central office switch 116 also generates appropriate signals to generate ring signal at the destination telephone 104.

As can be appreciated, the originating telephone 102 communicates with the central office switch 116 using the communication link 110 while the caller computer 184 communicates with the Internet 134 using the communication link 132. The communication link 132 may be a second telephone line, a network connection, such as an Ethernet connection, or the like. If the user has two telephone lines, the telephone number of the telephone (*e.g.*, the destination telephone 104) can be different from the telephone number associated with the computer (*e.g.*, the callee computer 154). However, the system 100 must be aware of an association between the telephone and the computer. This is particularly important if the status of the computer (*i.e.*, idle or active) is used as one of the call processing criteria. The system 100 can monitor the activity of a computer (*e.g.*, the callee computer 154) in order to establish a telephone communication link with an associated telephone (*e.g.*, the destination telephone 104). It is of no value to monitor a user's computer status at one location and call a completely unrelated telephone at a different location. For example, it is of no value to monitor the callee's computer at work and then to call the callee's home telephone number.

In other implementations, such as with a home computer, only a single telephone line may serve the function of both the communication link 110 and the communication link 132. Under these circumstances, the caller may use the caller computer 184 to indicate a desire to establish the telephone communication link and then must terminate the communication link 132 so that the central office switch may generate the appropriate signals on the communication link 110 at a point in time when the callee call processing criteria and the caller call processing criteria are both met. It should be further noted that this implementation will preclude the use of the status (*i.e.*, idle or active) of the caller computer 184 since the communication link 132 is not active.

Similarly, the destination telephone 104 and the callee computer 154 may be connected to the central office switch 116 and the Internet 134 via separate communication links (*i.e.*, the communication link 120 and the communication link 132, respectively). However, the system 100 may also be implemented with a single phone line. The callee may use the callee computer 154 and the communication link 132 to generate or edit the callee call processing criteria in the affiliation list 150. However, the user must then terminate the communication link 132 to permit the central office switch 116 to establish the communication link 120. As noted above, a single phone line precludes the use of computer status monitoring (*i.e.*, idle or active) for the callee computer 154 since the status cannot be monitored via the communication link 132.

The operation of the system 100 to establish a communication link with both the originating telephone 102 and the destination telephone 104 is illustrated in the flowchart of Figure 10 where, at a start 250, it is assumed that the caller and callee both have data in their respective affiliation lists. As previously noted, the affiliation list 150 for each individual may comprise separate sublists, such as illustrated in Figure 5, or a single data structure containing call processing criteria, such as allowing or blocking individual calls (see Figure 7) or establishing

conditional criteria, such as time restrictions, current user status (*e.g.*, in a meeting), or the current status of the user's computer (*e.g.*, the idle or active status of the callee computer 154). Furthermore, as previously noted, user status can be automatically provided to the affiliation list 150 by a computerized schedule program.

In step 252, the caller indicates a desire to establish a telephone communication link with the callee. In a conventional communication system, the caller picks up the originating telephone and dials the telephone number for the destination telephone 104. However, in accordance with this aspect of the system 100, the caller may indicate the desire to establish a telecommunication link using the caller computer 184 and placing the callee telephone number (*i.e.*, the telephone number of the destination telephone 104) on a call list, such as the forward list 160 (see Figure 5). By placing the callee on the forward list, the system 100 can access the callee affiliation list to determine whether the callee computer 154 is active on the Internet.

With the callee telephone number (*i.e.*, the telephone number of the destination telephone 102) placed on the call list, the system 100 can determine the call processing criteria of both the caller and the callee, and process the request for a telephone call in accordance with those rules. In step 254, the system 100 establishes a communication link with the Internet 134. As previously noted, the central office switch 116 may directly establish the communication link 132 with the Internet 134 or may use the SCAI 174 and call processor 176 to communicate with the Internet. It should be noted that the telephone portion of the system may have a continuous data link with the Internet via the central office switch 116 or the call processor 176. Thus, it is not necessary to continuously establish and tear down the communication link 132.

In step 258, the system 100 accesses the callee affiliation list 150. In step 260, the system 100 accesses the caller affiliation list 150. As previously

noted, the physical location of each affiliation list in unimportant to the satisfactory operation of the system. The only requirement is that the affiliation list is accessible via the computer network, such as the Internet 134.

In decision 262, the system 100 applies the callee call processing criteria and determines whether the present calling conditions meet the callee criteria. This includes testing whether the caller is contained within one of the sublists illustrated in Figure 5 or if the status associated with the call origination data indicates that the caller is allowed or blocked, or the like. If the present calling conditions do not meet the callee criteria, the result of decision 262 is NO. In that event, the system 100 can return to step 258 to again access the callee affiliation list. As those skilled in the art can appreciate, the callee affiliation list may be updated by the callee (typically via the callee computer 154) which may change the result of decision 262.

If the current call does meet the callee call processing criteria, the result of decision 262 is YES. In that event, the system 100 uses the data from the caller affiliation list 150 to determine whether the present call meets the caller call processing criteria. Although the caller indicated a desire to establish a telephone link with the callee, the caller may not be available for an immediate phone call. For example, the caller may have a meeting scheduled to begin, but expects to be available for a phone call following the meeting. The caller can manually set the call processing criteria, such as indicating the desired time of the telephone call. Alternatively, the caller call processing criteria may be automatically supplied to the caller affiliation list 150 through the use of a computerized scheduling program or the like. The system 100 may also monitor the status of the caller computer 184 to determine caller availability. For example, the caller may indicate an availability for a phone call after a predetermined time. The system 100 can detect the change in the state of the caller computer 184 from the idle state to the active state and interpret that as an indication that the caller is now available for a telephone call.

The system can apply these conditions individually or in various combinations to determine the availability of the caller and callee. If the call does not meet the caller call processing criteria, the result of decision 264 is NO. In that event, the system 100 can return to step 258 to access the affiliation lists for the callee and caller, respectively, and thus continuously monitor the callee and caller call processing criteria to determine an appropriate time to make a phone call.

If the call does meet the caller call processing criteria, the result of decision 264 is YES. In that event, in step 266 the system 100 causes the central office switch 116 to send the appropriate ring signals to the originating telephone 102 and ring signals to the destination telephone 104. In this manner, the telephone system follows the call processing guidelines of both caller and callee stored on a computer network to control the processing of the call on the telephone network.

Although the example illustrated in Figure 10 illustrates a continuous process of checking call processing criteria against the current call conditions, those skilled in the art appreciate that other possible actions can be taken by the system 100. For example, the caller may be on the block list 164 (see Figure 5). In this condition, the call will never meet the callee call processing criteria. The system 100 thus will never establish a communication link. The system 100 can send a message to the caller computer 184 indicating that the callee does not accept calls in this manner and to leave a message on the voicemail system 180. Alternatively, the system 100 can establish a telephone communication link to the originating telephone 102 and provide a similar message. As discussed above with respect to Figure 4, a variety of voice mail messages can be provided to the user. The system 100 may establish a telephone communication link to the originating telephone 102 and play the appropriate outgoing message 182 (see Figure 4). As noted above, the system 100 can apply call processing rules derived from any source, such as the current status (*e.g.*, idle or active) of the callee computer 154 or the caller computer 184, the presence or absence on one of the sublists in Figure 5 (*e.g.*, the block list

164), the status of one party (*e.g.*, the allowed status of the caller), callee or caller status data provided by computerized scheduling systems, or the like. The system 100 advantageously allows multiple forms of call processing criteria to be stored in the network, such as the Internet 134, and accessed by the telephone system, such as the central office switch 116 or the call processor 176. Those skilled in the art will also recognize that the embodiment of the system 100 shown in Figure 9 can be implemented with various telephone system configurations, such as those illustrated in Figures 2 and 3, or any other telephone system configuration. Furthermore, the system 100 is not limited by the specific component of the telephone system that establishes the network link 132 with the affiliation list 150. Although Figure 9 illustrates the central office switch 116 or the call processor 176 as the component that establishes the network link, those skilled in the art will recognize that other components, such as the central office switch 106 (see Figure 2), the LDC 124, or the like can establish the network link 132. Thus, the system 100 is not limited by the specific component of the telephone communication system that establishes the network link 132.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, the system discussed herein uses, by way of example, the Internet 134 to store the affiliation list 150. However, the system 100 can be implemented with other computer networks or as a portion of a telephone switch, such as the central office switch 116. The telephone service provider can provide a customer with an affiliation list and some means to control the list as a value-added telephone service. The central office switch 116 accesses the internal affiliation list and processes the incoming calls in accordance with the user-specified criteria contained therein. Accordingly, the invention is not limited except as by the appended claims.

CLAIMS

What is claimed is:

1. A system for telephone call processing in a telephone network using an independent computer network, the system comprising:

an originating telephone associated with a caller and coupled to the telephone network;

a destination telephone associated with a callee and coupled to the telephone network;

a call processor coupled to the telephone network and the computer network to determine a callee status based on callee status data from the computer network and to determine a caller status based on caller status data from the computer network; and

a call generation controller to generate control signals on the telephone network to thereby initiate a telephone call to the originating telephone in response to the caller status data indicating that the caller is available to receive the telephone call and to initiate a telephone call to the destination telephone in response to the callee status data indicating that the callee is available to receive the telephone call.

2. The system of claim 1, further comprising a callee computing platform associated with the destination telephone and coupled to the computer network wherein the callee computing platform has an associated status based on user activity on the callee computing platform, the callee status data comprising the callee computing platform status.

3. The system of claim 2 wherein the callee computing platform includes a coordinate control input device and the call processor determines callee computing platform status by detecting user activation of the coordinate control device,

the callee computing platform status indicating the callee computing platform activity and callee availability to receive the telephone call.

4. The system of claim 2 wherein the callee computing platform includes a keyboard and the call processor determines callee computing platform status by detecting user activation of the keyboard, the callee computing platform status indicating the callee computing platform activity and callee availability to receive the telephone call.

5. The system of claim 1, further comprising a callee computing platform associated with the destination telephone and coupled to the computer network, wherein the callee computing platform executes computerized scheduling software to generate a callee schedule, the call processor determining callee status data based on the callee schedule.

6. The system of claim 5 wherein the callee computing platform stores data related to the callee schedule on the computer network, the call processor accessing the computer network to retrieve the data related to the callee schedule.

7. The system of claim 5 wherein the callee computing platform stores data related to the callee schedule on the computer platform, the call processor accessing the callee computing platform via the computer network to retrieve the data related to the callee schedule.

8. The system of claim 1 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call and is stored in a callee data structure on the computer network, the call processor accessing the callee data structure to retrieve the callee-generated status data, the call generation controller

generating control signals on the telephone network to initiate the telephone call to the destination telephone only if the callee-generated status data indicates that the callee is available to receive the telephone call.

9. The system of claim 8 wherein the callee-generated status data is stored in the data structure in association with caller identification data and the telephone call includes origination identification data associated therewith, the call processor using the origination identification data to identify the callee-generated status data stored in the callee data structure in association with the caller identification data and generating control signals on the telephone network to initiate the telephone call to the destination telephone only if the callee-generated status data stored in association with the caller identification data indicates that the callee is available to receive the telephone call.

10. The system of claim 8 wherein the callee-generated status data is based on time of day, the call generation controller generating control signals to initiate the telephone call to the destination telephone only if the time of day corresponds to a time period in which the callee-generated status data indicates that the callee is available to receive the telephone call.

11. The system of claim 8 wherein the callee-generated status data is based on callee preferences, the call generation controller generating control signals to initiate the telephone call to the destination telephone only if call conditions correspond to the callee preferences.

12. The system of claim 1 wherein the caller status data is generated by the caller to indicate caller availability to receive the telephone call and is stored in a caller data structure on the computer network, the call processor accessing the data structure to retrieve the callee-generated status data, the call generation controller

generating control signals on the telephone network to initiate the telephone call to the originating telephone only if the caller-generated status data indicates that the caller is available to receive the telephone call.

13. The system of claim 12 wherein the caller-generated status data is based on time of day, the call generation controller generating control signals to initiate the telephone call to the originating telephone only if the time of day corresponds to a time period in which the caller-generated status data indicates that the caller is available to receive the telephone call.

14. The system of claim 12 wherein the caller-generated status data is based on caller preferences, the call generation controller generating control signals to initiate the telephone call to the originating telephone only if call conditions correspond to the callee preferences.

15. The system of claim 1 wherein the control signals on the telephone network comprise a ring signal to the originating telephone and a ring signal to the destination telephone.

16. The system of claim 1, further comprising an additional destination telephone associated with the callee and additional callee status data associated therewith, the call processor determining the callee status based on callee status data from the computer network and based on the additional callee status data associated with the additional destination telephone, the call generation controller to generate control signals on the telephone network to thereby initiate a telephone call to the originating telephone in response to the caller status data indicating that the caller is available to receive the telephone call and to initiate a telephone call to the destination telephone in response to the callee status data indicating that the callee is available to receive the telephone call or

to the additional destination telephone in response to the additional callee status data indicating that the callee is available to receive the telephone call at the additional destination telephone.

17. The system of claim 1 wherein the destination telephone has an associated destination telephone number and the caller initiates activity of the call processor by selecting the destination telephone number.

18. The system of claim 17 wherein the caller selects the destination telephone number using the originating telephone.

19. The system of claim 17, further comprising a caller computing platform associated with the originating telephone and coupled to the computer network wherein the caller selects the destination telephone number using the caller computing platform.

20. A system for telephone call processing in a telephone network using a computer network, the system processing a telephone call between an originating telephone having an associated originating telephone number and a destination telephone having an associated destination telephone number, the system comprising:

a callee data structure contained within a computer network to store callee status data associated with the originating telephone number;

a caller data structure contained within the computer network to store caller status data associated with the destination telephone number;

a computer network access port used by the telephone network to access the caller and callee data structures; and

a call processor to access the callee and caller data structures via the computer network access port and to process the call processing request based on the callee and caller status data in the respective data structures.

21. The system of claim 20, further comprising a call generation controller to generate control signals on the telephone network to thereby initiate a telephone call to the originating telephone in response to the caller status data indicating that the caller is available to receive the telephone call and to initiate a telephone call to the destination telephone in response to the callee status data indicating that the callee is available to receive the telephone call.

22. The system of claim 20 wherein the callee data structure stores the callee status data in association with caller identification data and the incoming call includes origination identification data associated therewith, the controller using the origination identification data to identify callee status data stored in the callee data structure in association with the caller identification data.

23. The system of claim 22 wherein the identification data is telephone automatic number identification data.

24. The system of claim 20, further comprising a callee computing platform associated with the destination telephone and coupled to the computer network wherein the callee computing platform has an associated status based on user activity on the callee computing platform, the callee status data comprising the callee computing platform status.

25. The system of claim 20 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call and is stored in the

callee data structure on the computer network, the call processor accessing the callee data structure to retrieve the callee-generated status data, the call processor processing the telephone call only if the callee-generated status data indicates that the callee is available to receive the telephone call.

26. The system of claim 25 wherein the callee-generated status data is stored in the callee data structure in association with caller identification data and the telephone call includes origination identification data associated therewith, the call processor using the origination identification data to identify the callee-generated status data stored in the callee data structure in association with the caller identification data and processing the telephone call to initiate the telephone call to the destination telephone only if the callee-generated status data stored in association with the caller identification data indicates that the callee is available to receive the telephone call.

27. The system of claim 25 wherein the callee-generated status data is based on time of day, the call processor processing the telephone call to the destination telephone only if the time of day corresponds to a time period in which the callee-generated status data indicates that the callee is available to receive the telephone call.

28. The system of claim 25 wherein the callee-generated status data is based on callee preferences, the call generation controller generating control signals to initiate the telephone call to the destination telephone only if call conditions correspond to the callee preferences.

29. The system of claim 20, further comprising a callee computing platform associated with the destination telephone and coupled to the computer network, wherein the callee computing platform executes computerized scheduling software to

generate a callee schedule, the call processor determining callee status data based on the callee schedule.

30. The system of claim 29 wherein the callee computing platform stores data related to the callee schedule in the callee data structure, the call processor accessing the callee data structure to retrieve the data related to the callee schedule.

31. The system of claim 29 wherein the callee computing platform stores data related to the callee schedule on the computer platform, the call processor accessing the callee computing platform via the computer network to retrieve the data related to the callee schedule.

32. The system of claim 20, further comprising a caller computing platform associated with the origination telephone and coupled to the computer network wherein the caller computing platform has an associated status based on user activity on the caller computing platform, the caller status data comprising the caller computing platform status.

33. The system of claim 20 wherein the caller status data is generated by the caller to indicate caller availability to receive the telephone call and is stored in the caller data structure on the computer network, the call processor accessing the caller data structure to retrieve the caller -generated status data, the call processor processing the telephone call only if the caller-generated status data indicates that the caller is available to receive the telephone call.

34. The system of claim 33 wherein the caller-generated status data is based on time of day, the call processor processing the telephone call to the origination

telephone only if the time of day corresponds to a time period in which the caller-generated status data indicates that the caller is available to receive the telephone call.

35. The system of claim 33 wherein the caller-generated status data is based on caller preferences, the call processor processing the telephone call to initiate the telephone call to the originating telephone only if call conditions correspond to the caller preferences.

36. The system of claim 20, further comprising a caller computing platform associated with the origination telephone and coupled to the computer network, wherein the caller computing platform executes computerized scheduling software to generate a caller schedule, the call processor determining caller status data based on the caller schedule.

37. The system of claim 36 wherein the caller computing platform stores data related to the caller schedule in the caller data structure, the call processor accessing the caller data structure to retrieve the data related to the caller schedule.

38. The system of claim 36 wherein the caller computing platform stores data related to the caller schedule on the computer platform, the call processor accessing the caller computing platform via the computer network to retrieve the data related to the callee schedule.

39. A computer-readable medium containing computer-executable instructions for telephone call processing in a telephone network using a computer network of a telephone call between an originating telephone having an associated originating telephone number and a destination telephone having an associated destination telephone number by performing the steps of:

storing callee status data within a computer network in association with the destination telephone number;

storing caller status data within a computer network in association with the originating telephone number;

from the telephone network, accessing the callee status data and the caller status data from the computer network; and

processing the telephone call processing request based on the callee and caller status data.

40. The computer-readable medium of claim 39, further comprising computer-executable instructions for generating control signals on the telephone network to thereby initiate a telephone call to the originating telephone in response to the caller status data indicating that the caller is available to receive the telephone call and to initiate a telephone call to the destination telephone in response to the callee status data indicating that the callee is available to receive the telephone call.

41. The computer-readable medium of claim 39 wherein the callee status data is stored in association with caller identification data and the incoming call includes origination identification data associated therewith, the computer-readable medium containing computer-executable instructions for processing the telephone call using the origination identification data to identify callee status data stored in association with the caller identification data.

42. The computer-readable medium of claim 41 wherein the identification data is telephone automatic number identification data.

43. The computer-readable medium of claim 39 for use with a callee computing platform associated with the destination telephone and coupled to the computer network wherein the callee computing platform has an associated status based on user activity on the callee computing platform and the callee status data includes the callee computing platform status.

44. The computer-readable medium of claim 39 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call based on time of day and the computer-readable medium contains computer-executable instructions for performing the steps of processing the telephone call to the destination telephone only if the time of day corresponds to a time period in which the callee-generated status data indicates that the callee is available to receive the telephone call.

45. The computer-readable medium of claim 39 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call based on callee preferences and the computer-readable medium contains computer-executable instructions for performing the steps of processing the telephone call to the destination telephone only if call conditions correspond to the callee preferences.

46. The computer-readable medium of claim 39 for use with a callee computing platform associated with the destination telephone and coupled to the computer network wherein the callee computing platform executes computerized scheduling software to generate a callee schedule and the computer-readable medium contains computer-executable instructions for performing the steps of determining the callee status data based on the callee schedule.

47. A method for telephone call processing in a telephone network using a computer network of a telephone call between an originating telephone having an associated originating telephone number and a destination telephone having an associated destination telephone number, the method comprising:

storing callee status data within a computer network in association with the destination telephone number;

storing caller status data within a computer network in association with the originating telephone number;

from the telephone network, accessing the callee status data and the caller status data from the computer network; and

processing the telephone call processing request based on the callee and caller status data.

48. The method of claim 47, further comprising generating control signals on the telephone network to thereby initiate a telephone call to the originating telephone in response to the caller status data indicating that the caller is available to receive the telephone call and to initiate a telephone call to the destination telephone in response to the callee status data indicating that the callee is available to receive the telephone call.

49. The method of claim 47 wherein the callee status data is stored in association with caller identification data and the incoming call includes origination identification data associated therewith, telephone call being processed using the origination identification data to identify callee status data stored in association with the caller identification data.

50. The method of claim 49 wherein the identification data is telephone automatic number identification data.

51. The method of claim 47 for use with a callee computing platform associated with the destination telephone and coupled to the computer network wherein the callee computing platform has an associated status based on user activity on the callee computing platform and the callee status data includes the callee computing platform status.

52. The method of claim 47 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call based on time of day, the telephone call being processed to the destination telephone only if the time of day corresponds to a time period in which the callee-generated status data indicates that the callee is available to receive the telephone call.

53. The method claim 47 wherein the callee status data is generated by the callee to indicate callee availability to receive the telephone call based on callee preferences, the telephone call being processed to the destination telephone only if call conditions correspond to the callee preferences.

54. The method of claim 47 for use with a callee computing platform associated with the destination telephone and coupled to the computer network, wherein the callee computing platform executes computerized scheduling software to generate a callee schedule and the callee status data is based on the callee schedule.

55. The method of claim 47 for use with a caller computing platform associated with the originating telephone and coupled to the computer network wherein the caller computing platform has an associated status based on user activity on the caller

computing platform and the caller status data includes the caller computing platform status.

56. The method of claim 47 wherein the caller status data is generated by the caller to indicate caller availability to receive the telephone call based on time of day, the telephone call being processed to the originating telephone only if the time of day corresponds to a time period in which the caller-generated status data indicates that the caller is available to receive the telephone call.

57. The method claim 47 wherein the caller status data is generated by the caller to indicate caller availability to receive the telephone call based on caller preferences, the telephone call being processed to the originating telephone only if call conditions correspond to the caller preferences.

58. The method of claim 47 for use with a caller computing platform associated with the originating telephone and coupled to the computer network, wherein the caller computing platform executes computerized scheduling software to generate a caller schedule and the caller status data is based on the caller schedule.

Add A' 7

SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK

ABSTRACT OF THE DISCLOSURE

A telecommunication system combines telephone technology and computer network technology to monitor a caller and callee's computer activity and to access call processing criteria selected by the caller and callee and stored on the computer network. A component of the telephone system, such as a central office switch, accesses the caller and callee call processing criteria. The system evaluates the call processing criteria and, when conditions for both caller and callee are met, the telephone system initiates a telephone call between the caller and callee. The call processing criteria may include accepting all calls, no calls, or calls only from specified parties. In addition, the call processing criteria can vary in accordance with the time of day or an individual's personal preferences, or status, such as when an individual is in a meeting. A user's computer activity may also be monitored and the computer status as idle or active may be reported to the computer network as part of the call processing criteria.

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DECLARATION AND POWER OF ATTORNEY

As the below-named inventor, I declare that:

My residence, post office address, and citizenship are as stated below under my name.

I believe I am the original, first, and sole inventor of the invention entitled "SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK," which is described and claimed in the foregoing specification and for which a patent is sought.

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to herein (if any).

I acknowledge my duty to disclose information of which I am aware which is material to the patentability and examination of this application in accordance with 37 C.F.R. § 1.56(a).

We hereby appoint RICHARD W. SEED, Reg. No. 16,557; ROBERT J. BAYNHAM, Reg. No. 22,846; EDWARD W. BULCHIS, Reg. No. 26,847; GEORGE C. RONDEAU, JR., Reg. No. 28,893; DAVID H. DEITS, Reg. No. 28,066; WILLIAM O. FERRON, JR., Reg. No. 30,633; PAUL T. MEIKLEJOHN, Reg. No. 26,569; DAVID J. MAKI, Reg. No. 31,392; RICHARD G. SHARKEY, Reg. No. 32,629; DAVID V. CARLSON, Reg. No. 31,153; KARL R. HERMANNS, Reg. No. 33,507; DAVID D. MCMASTERS, Reg. No. 33,963; MICHAEL J. DONOHUE, Reg. No. 35,859; CHRISTOPHER J. DALEY-WATSON, Reg. No. 34,807; STEVEN D. LAWRENZ, Reg. No. 37,376; ROBERT G. WOOLSTON, Reg. No. 37,263; ELLEN M. BIERMAN, Reg. No. 38,079; PAUL T. PARKER, Reg. No. 38,264; ANN T. KADLECEK, Reg. No. 39,244; DAVID W. PARKER, Reg. No. 37,414; BRIAN G. BODINE, Reg. No. 40,520; FRANK ABRAMONTE, Reg. No. 38,066; E. RUSSELL TARLETON, Reg. No. 31,800; THOMAS L. EWING, Reg. No. 34,328; KEVIN S. COSTANZA, Reg. No. 37,801; DALE C. BARR, Reg. No. 40,498; KEVIN S. ROSS, Reg. No. 42,116; PAUL F. RUSYN, Reg. No. 42,118; JOHN M. WECHKIN, Reg. No. 42,216; THOMAS E. LOOP, Reg. No. 42,810; STEPHEN J. ROSENMAN, Reg. No. 43,058; BRIAN L. JOHNSON, Reg. No. 40,033; JAMES D. WHITE, Registration No. 43,985; KIMTON N. ENG, Registration No. 43,605; SUSAN D. BETCHER, Registration No. 43,498; DENNIS M. de GUZMAN, Registration No. 41,702; and JANE E.R. POTTER, Registration No. 33,332, comprising the firm of SEED AND BERRY LLP, 6300 Columbia Center, Seattle, Washington 98104-7092; along with KATIE E. SAKO, Reg. No. 32,628, and DANIEL D. CROUSE, Reg. No. 32,022, of Microsoft Corporation, One Microsoft Way, Redmond, Washington 98052-6399, as our attorneys to prosecute this application and transact all business in the Patent and

Trademark Office connected therewith. Please direct all correspondence to Michael J. Donohue at SEED AND BERRY LLP, 6300 Columbia Center, Seattle, Washington 98104-7092, telephone calls to (206) 622-4900 and telecopies to (206) 682-6031.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that the making of willfully false statements and the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

Stephen Mitchell Liffick

Date 4/8/99

Residence	:	City of Seattle, County of King State of Washington
Citizenship	:	United States of America
P.O. Address	:	4729 51st Avenue South Seattle, Washington 98118

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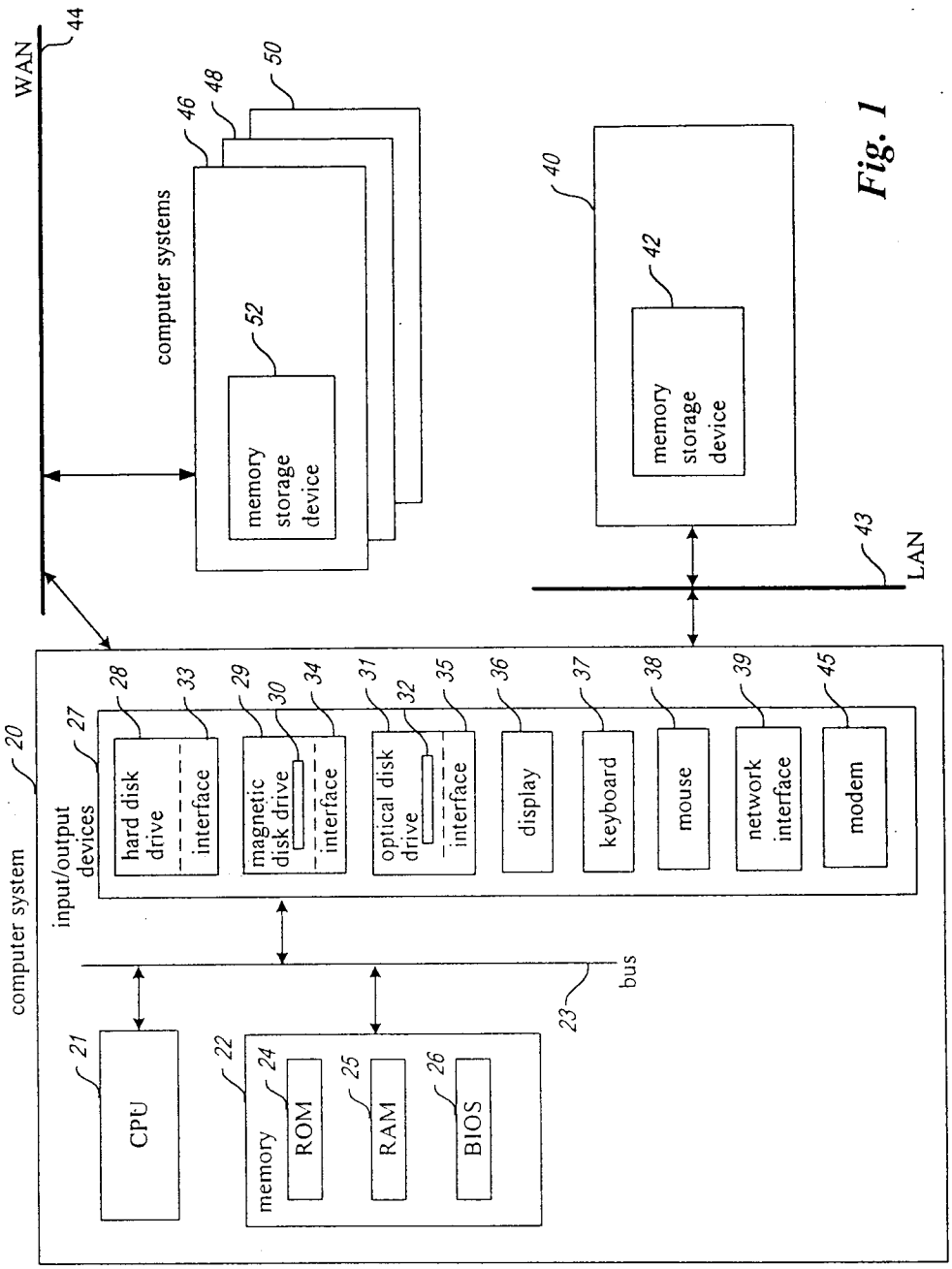

Fig. 1

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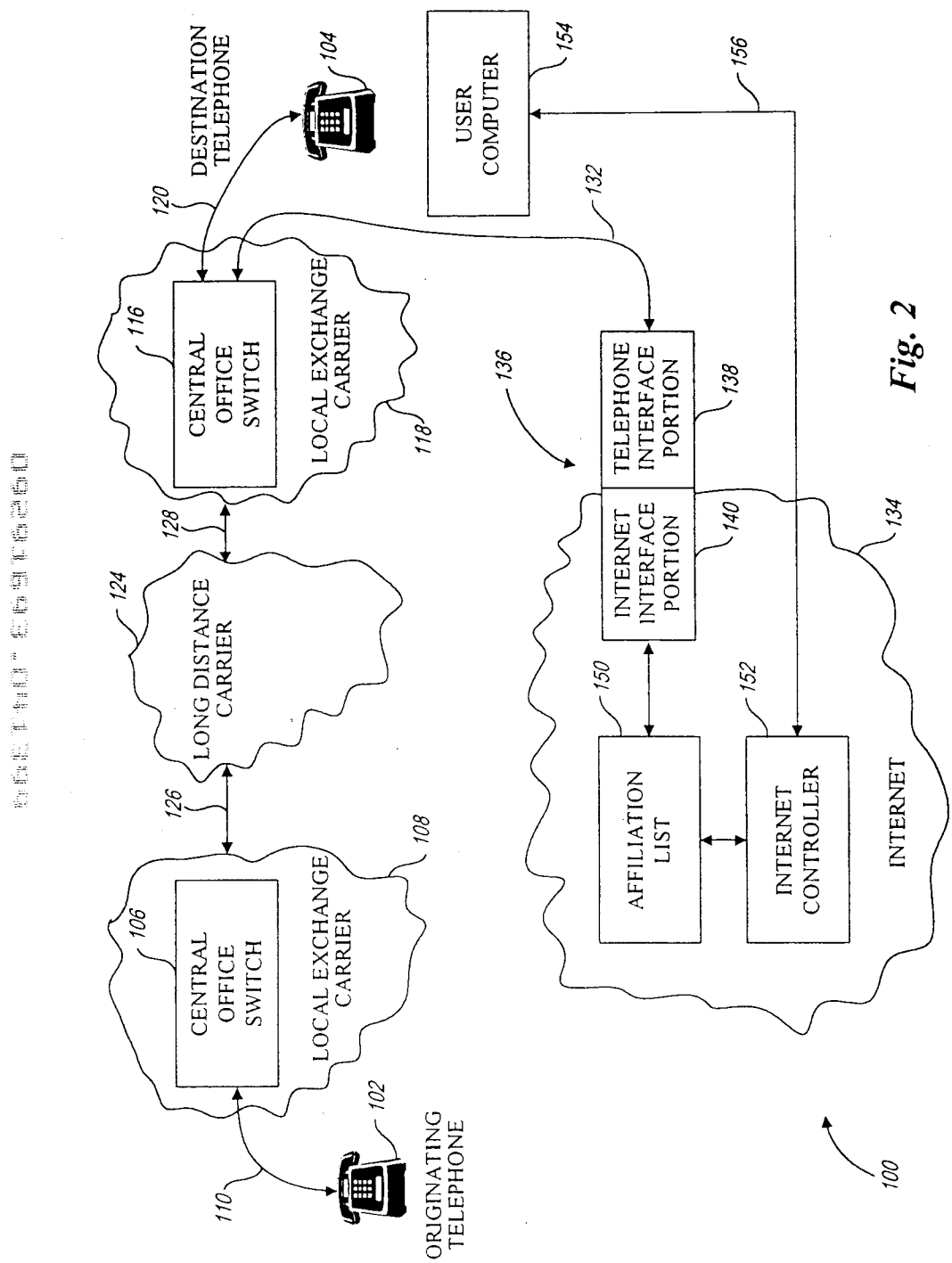

Fig. 2

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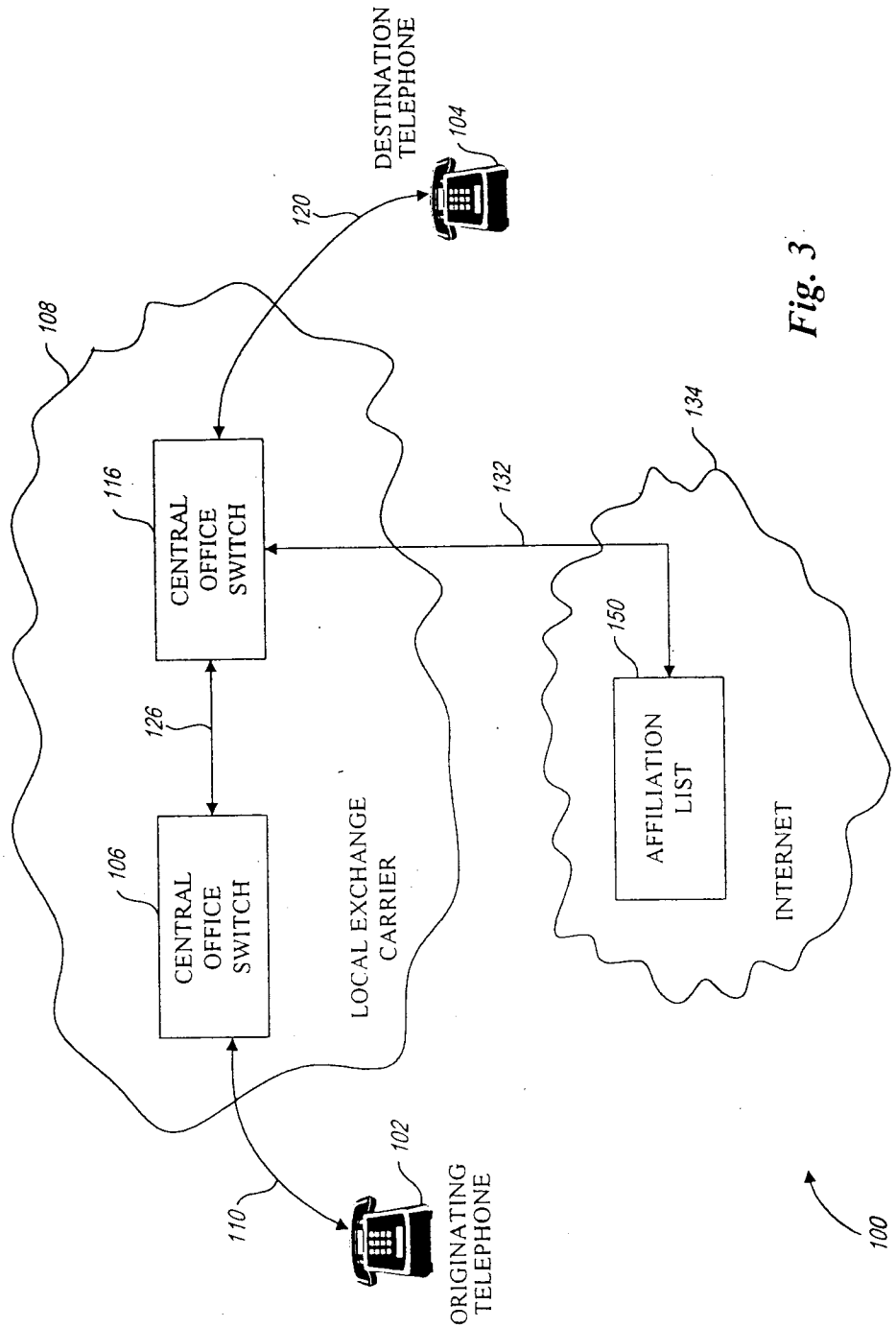

Fig. 3

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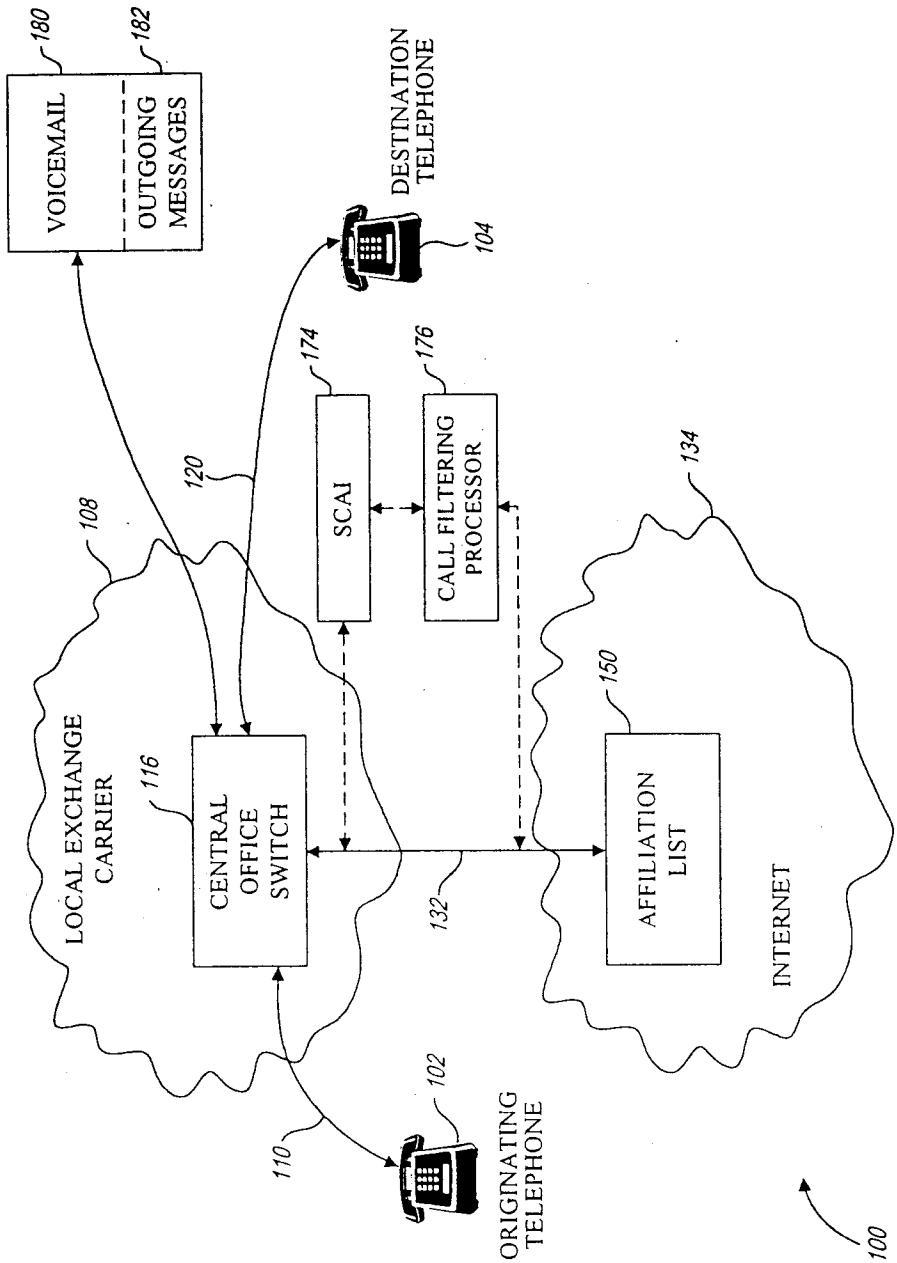

Fig. 4

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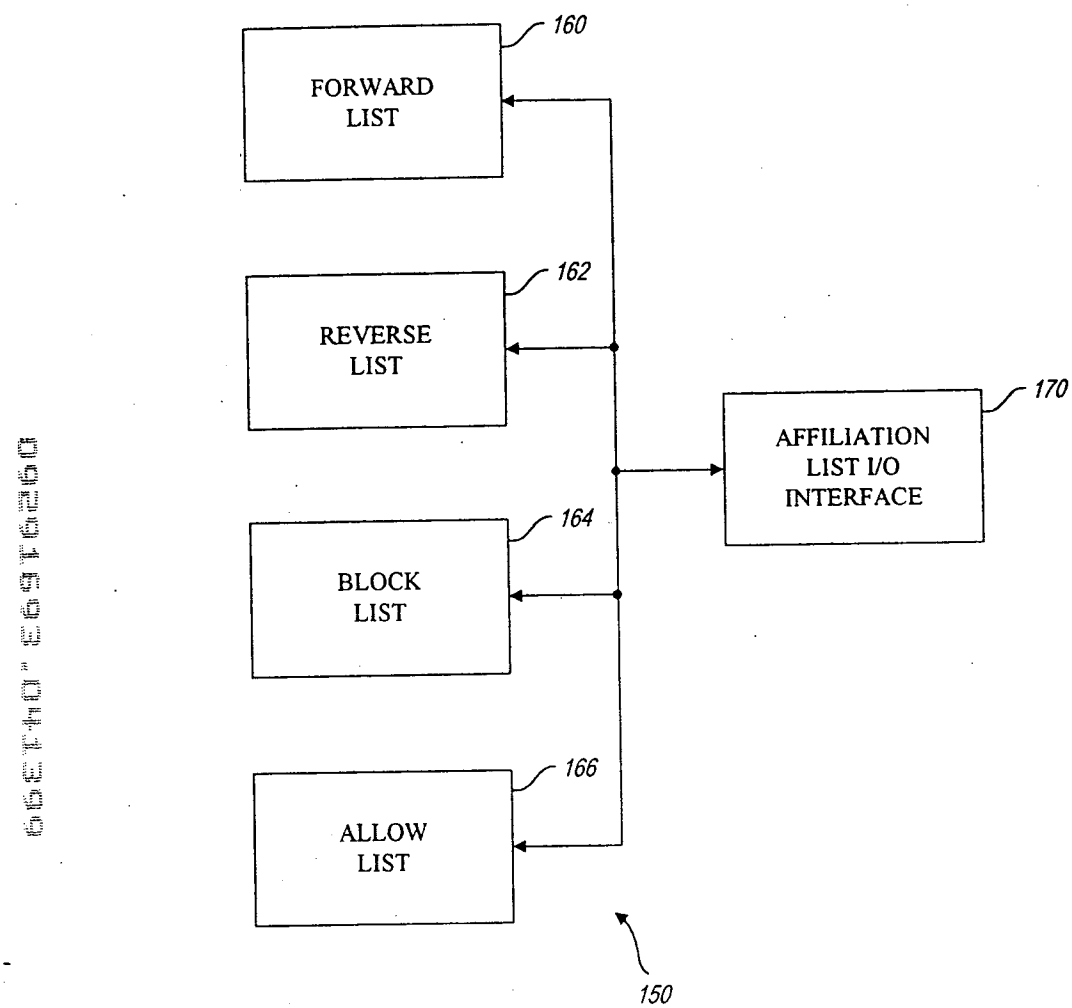

Fig. 5

PRINT OF DRAWINGS
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Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235
.	
.	
.	
.	
.	
.	
Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236
.	
.	
.	
.	
.	
.	
Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239

166

Fig. 6

Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235
Status	Allowed
.	
.	
.	
.	
Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236
Status	Blocked
.	
.	
.	
.	
Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239
Status	Conditional
Phone 1 -	Allowed
Phone 2 -	Allowed 9:00 a.m. - 11:30 a.m.
Phone 3 -	Blocked

150

Fig. 7

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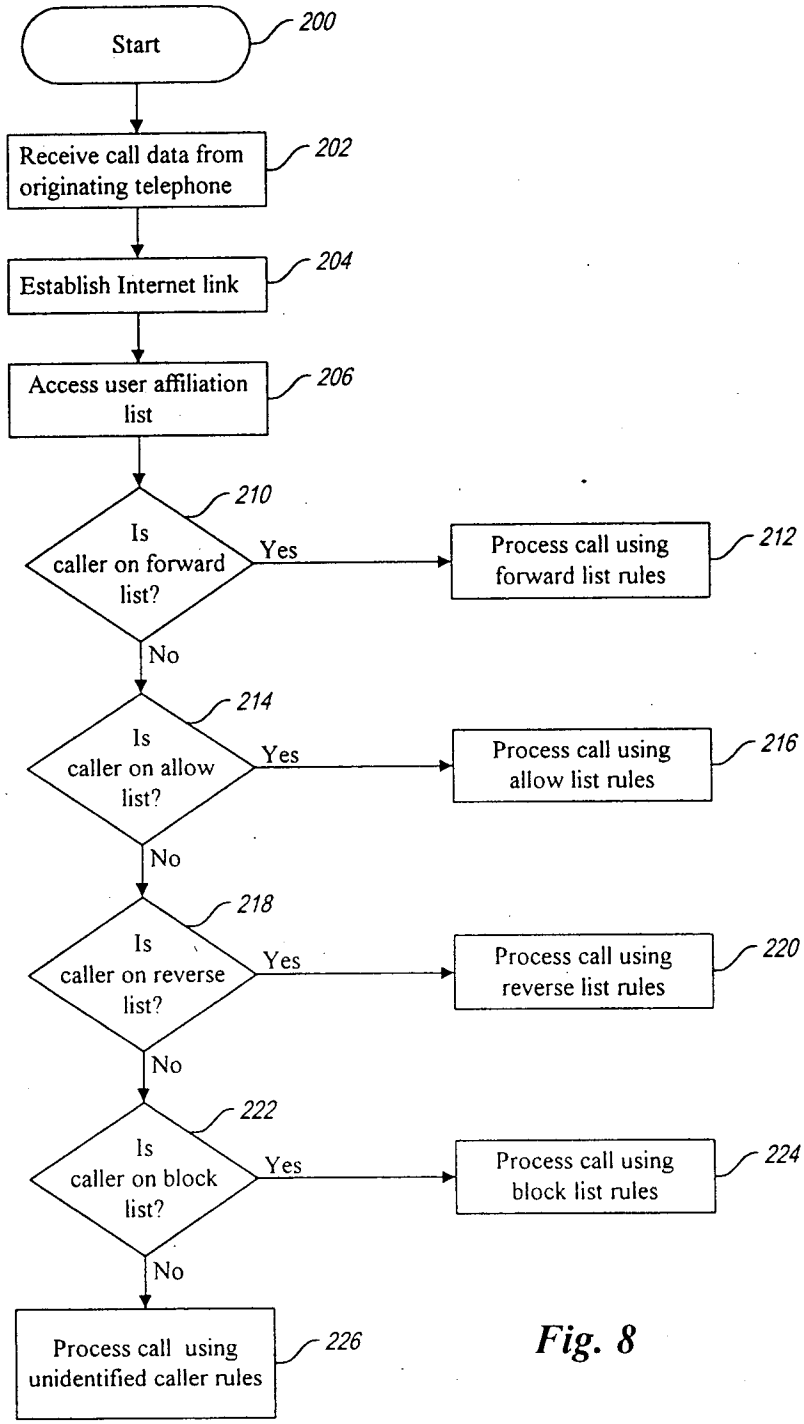

Fig. 8

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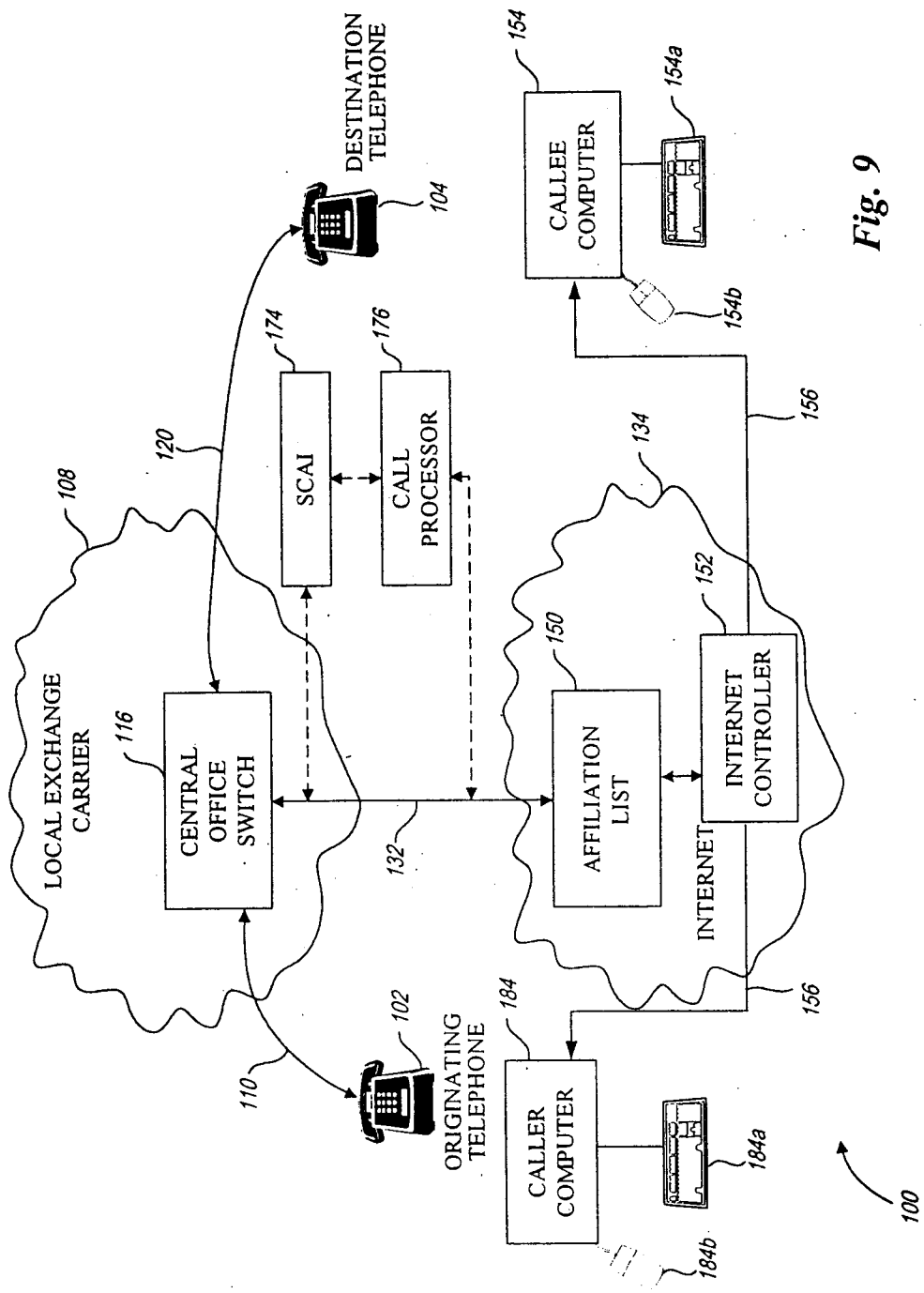

Fig. 9

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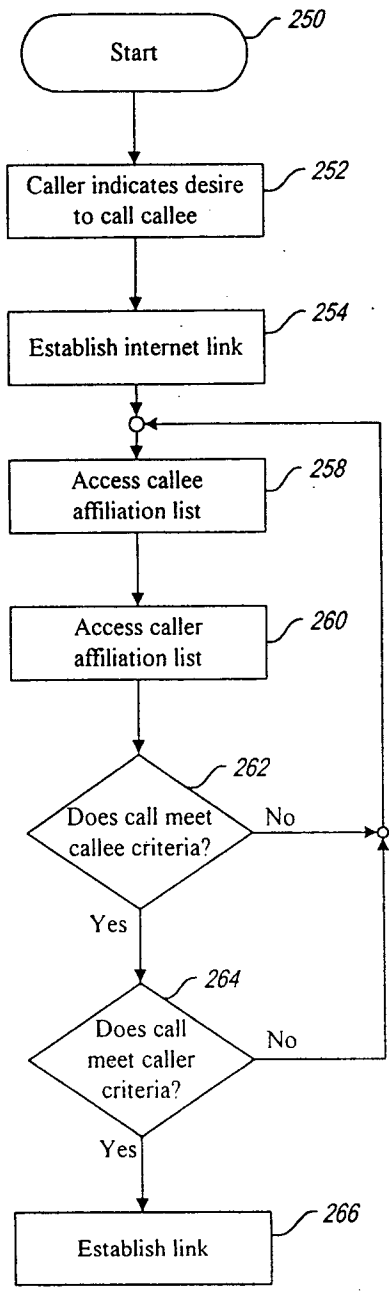

Fig. 10

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PATENT

I hereby certify that on the date specified below, this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to the Office of Initial Patent Examination, Customer Corrections Branch, Assistant Commissioner for Patents, Washington, DC 20231.

August 13, 1999 — Michael J. Donohue

Date — Michael J. Donohue

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Stephen Mitchell Liffick
Application No.	:	09/291,693
Filed	:	April 13, 1999
For	:	SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK
Art Unit	:	2743
Docket No.	:	664005.455
Date	:	August 13, 1999

Office of Initial Patent Examination
Customer Corrections Branch
Assistant Commissioner for Patents
Washington, DC 20231

REQUEST FOR CORRECTED FILING RECEIPT

Sir:

Attached is a copy of the official Filing Receipt received from the PTO in the above-identified application, for which issuance of a corrected Filing Receipt is respectfully requested.

There is an error with respect to the following data, which is incorrectly entered. There is an error in applicant's name, which should read STEPHEN MITCHELL LIFFICK, SEATTLE, WA.

The correction to be made has been marked in red on the copy of the enclosed Filing Receipt.

The correction is not due to any error by applicant and no fee is due.

Respectfully submitted,

Stephen Mitchell Liffick

SEED and BERRY LLP

Michael J. Donohue

Michael J. Donohue
Registration No. 35,859

MJD:lb
Enclosures:
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PTO-103X (Rev. 8-96)

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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
09/291,693	04/13/99	2743	$1,522.00	664005.455	10	58	4

SEED AND BERRY LLP
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SEATTLE WA 98104-7092

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Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s)
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